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ABSTRACT

Issues related to the use of distance education are discussed in this bulletin, which also summarizes the status of distance education in 26 countries of Asia and the Pacific. Section 1 contains a rationale for distance education and points out possibilities offered by advances in communication technologies. Section 2 gives country-by-country reports of distance education services available in the region. Primary and secondary, postsecondary, and teacher education are covered. Topics include learning materials, modes of instruction, and special needs linked with population and geography. Specific information is outlined for Afghanistan, Australia, Bangladesh, China, India, Indonesia, Malaysia, the Maldives, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Sri Lanka, and Thailand. Section 3 contains papers discussion China's use of distance education for higher education programs and the University of the South Pacific's experience with a satellite in distance education. A third paper presents guidelines for planning, operating, and evaluating a distance education system and offers specific questions and considerations for those responsible for planning new systems. Section 4 is a bibliographical supplement organized by country and listing over 100 annotated entries. (JHZ)

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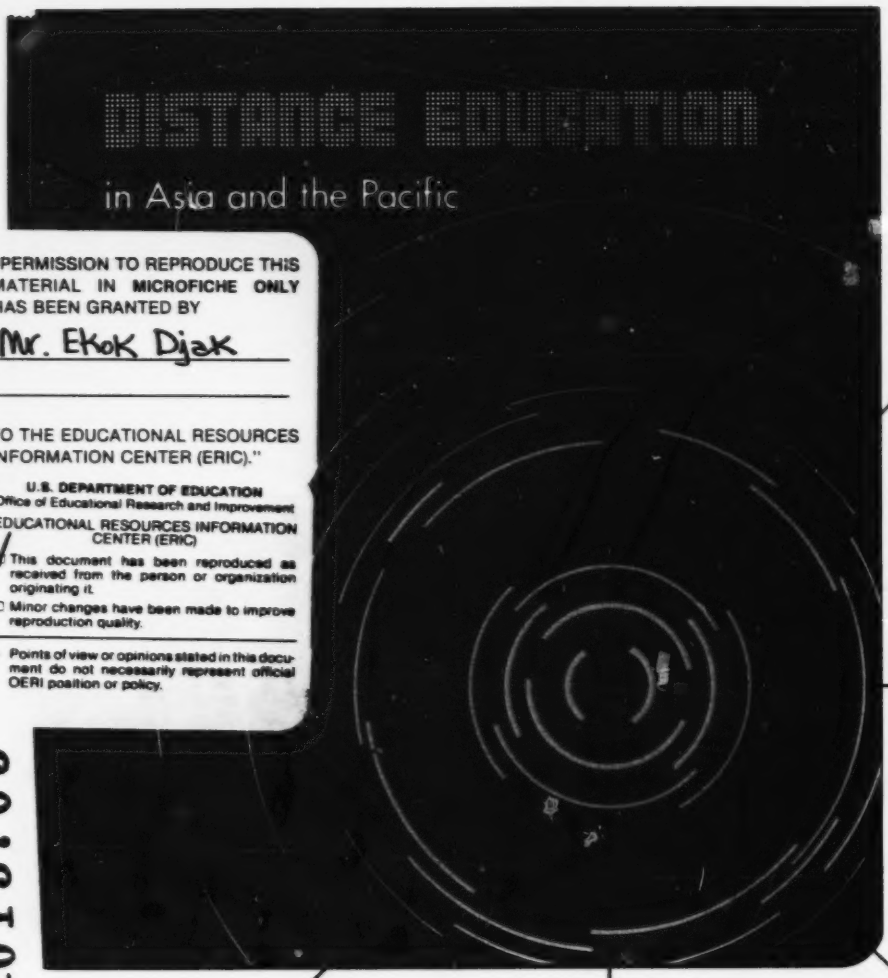

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SECTION ONE

TRENDS AND DEVELOPMENTS IN USING DISTANCE EDUCATION IN ASIA AND THE PACIFIC

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Number 26, December 1985

WHY DISTANCE EDUCATION?

by James C. Taylor and Vernon J. White *

What is distance education?

Definition. Keegan (1980) comprehensively analyses a range of attempts by a large number of eminent authorities to define distance education. He concludes that he is most attracted to Holmberg (1977) who offers the proposition that distance education is any one of the various forms of study which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms, and that it includes all those teaching methods in which teaching is conducted through print, mechanical or electronic devices.

There has been much debate generated by these and other definitions but in-depth analysis is not relevant to this paper. It suffices to say that the intent of Holmberg's definition is clear. The world generally understands distance education to mean the separation of teacher and student and the consequent use of a range of media to enable the learning process to take place.

Historical developments. Distance education as we now understand it began during the last century. A number of institutions, including private business firms, in both the United States and the United Kingdom began to teach using printed correspondence materials. Soon after the turn of the century a number of large universities also began to teach by this mode. These included the University of Queensland in Australia, followed soon after by the University of New England.

But the development of the distance education mode of teaching proceeded slowly. Teaching consisted largely of printed notes supplemented by face-to-face classes, either at remote study centres or at on-campus residential schools. In the early post-war years there was some growth, but it was not until the 1960s that a rapid escalation began.

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* Darling Downs Institute of Advanced Education, Australia.

Distance educators owe a lot to the Open University of the United Kingdom (OUUK). It is not that its organizational or educational models are necessarily appropriate for the rest of the world; nor that its courses are what the rest of the world is demanding; nor even that its teaching methods are adaptable to other nations. What the OUUK did was to legitimize teaching at a distance. The University proved that it could be done; that it could be done as efficiently and effectively as at conventional on-campus teaching institutions and at a cheaper rate; and that the end product was acceptable in the market place.

Almost simultaneously with the OUUK project, institutions in other European countries, North America and Australia, began to expand rapidly into distance teaching. Then Asia, Africa and South America joined in. The consequent question is: Why this upsurge of interest? In fact, why distance education?

Why distance education?

Access. The answer is that distance education showed that it could provide educational opportunities to large numbers of people who had previously been denied such opportunities, and that it could be done in a cost effective manner. That is the essence of the answer to the question: Why distance education? It is not that it enables new technologies to be used and it is not that it is a cheap method of teaching. It is that it has provided access to learning to many people, and can provide access to many more.

The developing countries have found in distance education an answer to the previously almost insurmountable problem of how to take education to the large number of their population who are isolated geographically. But equally, developed countries have found distance education to be the way to take education to their urban isolated, the people in cities who, for one reason or another, cannot attend on-campus classes. And both developed and underdeveloped nations have found distance education to be the way to take education to the socially isolated.

Geographical isolation. People may be geographically isolated because of distance, because of terrain, or because a communications system has not been developed. In Australia, which is 4,000 kilometres from north to south and an equal distance from east to west,

and which has a population of less than 15 million people, there are groups of people in isolated rural areas who are dependent on distance education from their first years of school.

The main island of Papua New Guinea has a high mountain chain running through the centre with equally high ridges running off it at right angles right to the sea. The country thus consists of a number of nodes with the sea on one side and high mountains on the other three. People living in each of these nodes have developed in relative isolation even though the actual distances between them are not great. But distance education techniques mean that education can be brought to these groups.

Social isolation. People can become socially isolated for any number of reasons. Mostly it is because they are disadvantaged in some way, be it financial, physical, emotional, or because of family circumstances. Most of all, this is the group which distance education can help.

Disadvantaged groups. Taking education to disadvantaged groups is no easy task. Generally speaking people in such groups lack confidence in their own ability to learn. Of course, most of them have the ability, but they have to come to this realization themselves by being allowed or even persuaded to test their capabilities. One of the obvious manifestations of this lack of confidence is a reluctance to participate in face-to-face classes where they feel their shortcomings will be exposed. In fact, many will refuse to participate in an education programme for these reasons.

However, distance teaching techniques enable people to undertake a course of study in privacy. Thus they can learn at their own pace and take refuge in the fact that they can succeed or fail without the fact becoming public. Many of these people, when they have achieved some success, and when they have gained confidence, may elect to transfer to the face-to-face mode. But their introduction to education is gained through distance education.

Adults only. Tertiary level education at a distance is not necessarily the exclusive domain of adults. It sometimes seems to be taken for granted that distance education is synonymous with adult education. This is the 'second chance' university syndrome; the concept, initiated by the OUUK, that distance teaching institutions are for adults who have missed the chance of attending a conventional university in their youth.

Additionally, most of the adults for whom the open universities were intended to cater were not expected to have attained the qualifications necessary for them to qualify for entry into conventional on-campus institutions. Thus the words 'open university' appear, in many minds, to be synonomous with unqualified adults. But this need not, and should not be the case. Distance teaching techniques can be used to teach people of all ages, and to teach courses from a wide range of discipline areas, both vocational and non-vocational.

It is ironic that senior distance educators who have spent many years arguing that distance teaching produces an end product at least equal to that produced by conventional institutions, are the first to argue that the distance teaching mode is only suitable for adults; that something happens at magic 21 to 23 years which makes the student susceptible to distance teaching techniques. There is no evidence to prove this assertion. Indeed, there is much evidence to refute it. Students in remote areas in Australia have successfully been taught at a distance from the beginning of their primary schooling.

Discipline areas. Equally ironic is the fact that it is often the distance educators themselves who submit that only a limited number of discipline areas can be taught at a distance. The classic argument is that medicine cannot be taught externally. Perhaps not all of it can be, but a great deal of it can, perhaps the majority. Another of the oft called difficult disciplines, engineering, has also been taught successfully at a distance for a number of years.

Thus distance education techniques can be used to teach a wide variety of courses, across a wide range of disciplines, to most students. The basic necessities are that the student be motivated to learn, and that the instructional materials be well designed. Most instructional techniques available to distance teachers are multifunctional and may be adapted to a variety of objectives, learners and course discipline areas. But the instructional packages must be functional, that is, what matters most is the efficacy of the instructional treatment contained in the instructional message.

If radio is the only teaching medium available in a country because of poor ground communications, it can be developed as a most effective teaching medium. The provisos are that the teaching sessions be well structured and soundly based from an instructional perspective, and that the students be well motivated. Of course, the

problem is that not all students are highly motivated. Thus it will always be better if a range of distance teaching techniques are used, provided they are available.

Institutional growth. In further considering the question, "Why Distance Education?" another very simple answer may be given: because it works. If one considers the large number of institutions in the region and indeed around the world currently expending resources on distance education programmes then one must presume that distance education is a viable process. For example, the recent directory of resource materials used in distance teaching by higher education institutions in the Australia/Pacific region that was compiled by the Unesco Regional Office for Education in Asia and the Pacific (1984), highlighted the fact that 34 institutions of higher education in Australia, India, Pakistan, New Zealand, Sri Lanka and Thailand were heavily involved in distance education. The level of courses ranged from Associate Diploma to Diploma, Bachelor's Degree and Graduate Diploma and Master's Degree level courses in a wide range of subjects, drawn from practically all disciplines. Distance education courses in the region are currently available on subjects as diverse as Biological Aquatic Resource Management, Digital Electronics, Civil, Mechanical and Electrical Engineering, Surveying, Education, Computing, Prehistoric Archaeology, Economics, Psychology, Sociology and a wide variety of language subjects. Evidence for such a massive investment in distance education in such a wide range of contexts suggests that distance education does in fact work.

How cost effective is distance education?

Cost. There have been a number of studies done on the costs of teaching at a distance, and some data is available on its effectiveness. But very little has been done towards putting the two parts together and formulating a cost effectiveness study of distance education. Further the little that has appeared has inevitably referred to distance teaching in developed countries.

There appears to be an almost unanimous belief that distance teaching is cheaper than on-campus teaching. Of course distance teaching can be as cheap or expensive as is desired. But a distance teaching institution which prepares well structured instructional packages using a variety of techniques, and which provides good teaching and administrative support to the student, can apparently operate at a lower per student cost than conventional institutions.

However, distance teaching can aiso be done extremely cheaply. One of the long standing distance teaching institutions in London, with good academic standing, merely distributes course outlines and recommended texts, and sets examinations. It has been demonstrated repeatedly that highly motivated students can learn through any medium, and it would appear that students who succeed at the London institution are, indeed, highly motivated.

Effectiveness. Although there is no research to support the argument, it seems reasonable to hypothesize that as fewer and simpler distance media are used, the drop-out rate may rise. If print, audio, video, computer managed learning, and residential schools are all part of the teaching programme, the drop-out rate may be lower than if a single medium such as radio is used. There is evidence that a hard core of students will persist and achieve success no matter how limited the teaching techniques. This argument is conditional on all the media packages being equally well designed. It could be expected that achievement rates will rise as more money is expended but it is impossible to guess what the optimum level might be. Certainly a distance education system operates effectively at lower cost than conventional institutions, attaining the same academic standards which maintain close to the same pass rates.

Of course, distance teaching becomes most cost effective when large numbers of students are involved. It costs no more to prepare and present an educational radio or television programme to a small group of students than to a very large group. Once a set of printed instructional materials is prepared, multiple copies can be reproduced and distributed to any number of students. The larger the number, the smaller the preparation cost per student. Also, the reproduction costs, such as printing, will fall because of economies of scale. The one area where there are few economies of scale is the interactive teaching part of the system. It takes almost twice as long to mark 200 assignments as it does to correct 100. Nonetheless, because of the economies of scale available in the preparation and reproduction phases, and sometimes in delivery, the distance education mode of teaching has enormous advantages for developing countries. It can be a highly cost effective way of teaching.

The distance teaching perspective

Compared with conventional teaching. From a teaching perspective, it must be acknowledged that the inherent nature of dis-

tance education includes features which are quite distinct from teaching that takes place in conventional educational settings. Distance teaching entails at least three elements which are not shared with much of the conventional approach to teaching. First, distance teaching embodies a permanent record of instruction which is usually captured in print on audio tape or some other form of electronic media. Second, distance teaching tends to embody self-instructional principles and is largely learner oriented rather than teacher centred. Third, distance teaching tends to engender the use of a wider range of media than is normally the case for conventional education settings. This is not to deny that distance teaching techniques may be fruitfully applied in on-campus settings, but the latter is more the exception than the rule. The fact that distance teaching is permanent, is based on self-instructional principles and generally entails the use of a range of media has certain implications for the role of the distance teacher.

The team approach. It is not unusual for these inherent aspects of distance education to promote a multi-disciplinary team approach to distance teaching rather than the singular activity which teaching tends to be in conventional settings. The simple logic behind this approach is that it is unusual to find the range of expertise necessary to exploit a range of media and self-instructional principles in any single teacher, but rather it demands a range of expertise including that of a subject matter specialist, that of an instructional designer and that of various media personnel and possibly computing personnel. While this type of team approach to distance teaching requires careful project leadership it seems reasonable to argue that the quality of the teaching material will be enhanced by the application of a wider range of expertise to the teaching/learning process than is normally the case with on-campus teaching.

Associated with this multi-disciplinary team approach is a demand for systematic, fine-grained, pre-planning of the teaching/learning experience. One cannot allocate expensive resources to the production of printed materials, audio tapes, video tapes or the like in a haphazard fashion, rather one must ensure a high quality product. Systematic pre-planning which engenders the design and development of high quality learning resources is again somewhat removed from the typical on-campus approach to teaching where delivery of instruction tends to be the dominant feature. A large proportion of the on-campus teacher's time is taken up in front of students, either

in lectures, tutorials or laboratory settings, with the result that the time for systematic planning is somewhat reduced, especially when teaching staff may also have research interests to pursue. Distance education, then demands a switch in the orientation of the distance teacher from that of instructional delivery to one of instructional design, based on systematic pre-planning. Overall, then, it appears that distance teaching seems likely to engender serious consideration of the art and science of teaching, unlike conventional on-campus teaching where rigid organizational structures tend to protect outmoded approaches to the teaching/learning process.

Instructional design. The emergence of a new discipline, instructional design, has added impetus to the potential efficacy of distance teaching in the context of the multi-disciplinary team approach. The emergence of instructional design techniques for analysing the structure of the subject matter, assessing the critical learning attributes of students, specifying clearly defined learning outcomes, selecting appropriate learning experiences in a carefully delineated sequence and designing appropriate assessment instruments with associated diagnostic-remedial support systems, all embodying self-instructional principles, has created the potential for a significant improvement in the quality of teaching and learning. The work of the instructional designer in the multi-disciplinary team is to provide a blueprint for instructional development and delivery in much the same way that an architect provides a blueprint for a building. This approach (the generator model) is in direct contrast to the more traditional instructional design process, which takes place after the materials are prepared and the designer acts more in an editorial role (the transformer model). This transformer approach has achieved some support in spite of its apparent inherent inefficiency. It is probably a reflection of the traditional ascendency of the subject matter specialist in the generation of teaching/learning resources.

Institutions which have the resources and organizational flexibility to invest in a multi-disciplinary approach to instructional development seem likely to engender a significant improvement in the quality of teaching and learning at all levels of education. It is, however, the inherent nature of distance education in the permanency of the instructional message, its use of a range of instructional media and its endorsement of self-instructional principles, which has placed distance education at the forefront of such develop-

ments. With its emphasis on systematic fine-grained pre-planning it seems reasonable to argue that distance education provides a more professional approach to the art and science of teaching than much conventional education and thereby generates more interesting and efficacious learning experiences for students. In short, distance education continues to expand and prosper because it is a good way to teach. If one considers the student perspective in attempting to answer the question "Why does distance education work?" one must also entertain the possibility that not only is it a good way to teach, it is a good way to learn. Why is it a good way to learn?

The distance learning perspective

Compared with conventional learning. Again, distance education has certain inherent features which differentiate distance learning from learning in conventional education systems. It must be acknowledged, however, that there is no necessary connection between instruction and learning, since in the final analysis learning is a personal affair, learning is what the student does, and it may be unrelated to what the teacher does. Some students will likely be successful learners, irrespective of the quality of teaching, while others may be highly dependent on the quality and style of instruction. The likely higher quality of the self-instructional package produced by a multi-disciplinary team of experts for use in distance education therefore seems likely to enhance the learning experience of distance education students. In effect, such instructional packages produce learning resources, which engender quality control of instruction relatively independent of particular lecturers and/or tutors, who no doubt vary in their efficacy – especially, perhaps, in systems which entail distributed networks of campuses supported by local personnel.

Instructional package advantages. At a more specific level one might ask the question: What are the particular features of self-instructional packages that seem likely to enhance student learning? First the delivery of such instruction (apart from systems dependent on broadcast media) is not tied to a particular time and place, as is the case with conventional education. Students can use printed study guides, audio cassettes, video cassettes and the like whenever and wherever it is convenient to them. Such learning resources are infinitely adaptable to the pace at which individual students learn,

since the pace of learning is not determined by set lecture or tutorial periods in group settings. As well as providing the flexibility of self-pacing, such materials also engender self-reliance among students who can increasingly take responsibility for their own learning. If these potentially valuable outcomes are to be achieved, however, it is essential that the instructional packages endorse self-instructional principles, which are largely manifested in the provision of self-assessment questions whereby students are given questions/exercises to complete and are subsequently provided with worked solutions/ detailed answers, which allow them to judge the adequacy of their own efforts. Such self-assessment questions engender interaction/ dialogue that is so often missing from standard textbooks and journal articles upon which so many students come to depend in conventional settings. The well-structured distance education package therefore engenders a productive use of learning time.

While such self-instructional techniques can include the discussion and explanation of typical errors made by students, they cannot cater for all misconceptions that might limit the efficacy of learning among large numbers of students. For this reason it is desirable to provide some form of student support services whereby students can enter into meaningful dialogue with their instructors. Such support services usually depend on the availability of telephone systems, mail services or local area resource centres, with local tutorial support. These support services are primarily used to cater for the individual needs of students and are often optional, given that many distance education students are in full-time employment and are therefore part-time students for whom time is a precious resource. This more flexible organization of learning activities provides a striking contrast to the compulsory organizational schedule usually associated with conventional on-campus educational settings. A more rigid schedule, however, may be advantageous for those students who find it difficult to plan their time effectively and organize and motivate themselves to adhere to a study plan. In general, distance learners are dependent more on their own motivational resources to a greater extent than is the case with on-campus students. Nevertheless, certain strategies such as providing distance students with detailed study time-tables and/or demanding regular submission of assignments have been used to engender persistence among off-campus students, who may need assistance in coping with the demands of part-time study.

All of the aforementioned issues can be considered during the multi-disciplinary team planning and preparation of well-designed self-instructional packages and can be adapted to various cultural norms. Such careful detailed planning seems likely to enhance the motivation and persistence of those students who need additional support to a point where improvement in the quantity and quality of student learning could be reasonably expected.

Common elements. The previous discussion has tended to treat both distance education and conventional on-campus education in a relatively global, almost stereotyped, manner in order to highlight contrasts between the teaching/learning process in each context. In practice, the distinctions drawn are unlikely to be so clear cut, since the majority of learning contexts seem likely to include a mixture of face-to-face and distance elements. For example, in distance education systems it is not unusual to find a degree of compulsory attendance at face-to-face meetings at a set time and a set place. Similarly, in conventional educational settings, opportunities for learning from books and journal articles without direct supervision are commonplace. The key point remains, however, that from a teaching perspective the detailed pre-planning and permanent nature of the well-designed self-instructional packages produced for distance education seem to have many inherent advantages over the transient nature of much face-to-face conventional education, where the emphasis is on instructional delivery rather than instructional design and development. It seems reasonable to argue that an opportunity exists to enhance the quality of on-campus education through the judicious use of materials prepared for distance students. While this occurs to some extent at present, it tends to be the exception rather than the rule. The well-planned use of distance education materials on campus could also presumably enhance the cost-effectiveness of both distance and conventional systems.

The apparent advantages of distance education from the teaching perspective seem likely to flow on to students. Certainly the opportunity to optimise the use of often limited time for learning by working with clearly structured/well-designed self-instructional learning resources at a time and place of their own choosing seems likely to engender successful learning outcomes for many students. If this opportunity is further enhanced by the availability to use individualized communication opportunities or other optional, perhaps group

based, support systems, student learning seems likely to be further optimized. This relatively uncritical/idealized perspective must be qualified by the acknowledgement that it is probably fair to say that whereas in on-campus educational settings the responsibility for student progress is very much a shared responsibility between student and teacher, in the distance education arena, students are required to take considerably more responsibility for their own progress in the sense that they must make their own arrangements about where and when to study, work without direct supervision, and basically develop skills in self-pacing and self-evaluation. The development of such a self-directed orientation may well be beyond the capabilities of certain students, especially in cultural settings where dependency on some form of authority is a significant feature of the social milieu. Nevertheless, the detailed instructional planning that is an inherent feature of distance education can presumably take into account cultural needs/pressures and engender an appropriate balance between self-directing and teacher controlled learning experiences relevant to particular cultural contexts.

Conclusion

The justification for distance education from both teaching and learning perspectives seems well established – at least on a theoretical level. The lack of empirical justification of such a position is dependent upon further research, which, due to the relatively recent surge of interest in distance education, is somewhat limited. One may return, however, to a pragmatic justification – large numbers of students throughout the world have benefitted tremendously by taking the opportunities for personal and professional advancement offered to them by distance education. Perhaps the question we are addressing should not be "Why distance education?" but "How can opportunities be further expanded and cost-effectiveness enhanced by the judicious use of distance education techniques in educational systems in general?"

Bibliography

1. Holmberg, B. ***Distance education: a survey and bibliography.*** London, Kogan Page, 1977.

2. Keegan, D. "On defining distance education", ***Distance education.*** 1, 1, 13. 1980.

3. Unesco. ***Resource materials used in distance teaching by higher education institutions,*** Bangkok, Unesco Regional Office for Education in Asia and the Pacific, 1984. 44 p. (Regional Co-operative Programme in Higher Education for Development).

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POSSIBILITIES OFFERED BY ADVANCES IN COMMUNICATION TECHNOLOGIES

*by R.S. Adams, D.R. Bewley and T.A. Povey**

Introduction

The purpose of this technical paper is to identify major advances made in communication technologies in recent years and to consider whether these might be practically applied to improve the quality of teaching and learning in universities and colleges, particularly in the developing countries in the region. Large classes, traditional lectures, fixed and uniform time schedules, continue to be the practices in many such institutions even though breakthroughs have been made in the use of modern technologies for improving teaching, research and other educational activities.

The paper examines the potential and prospects of the new technologies for provoking more attention to effective teaching strategies and for helping academics to become more professional about teaching. The first section is concerned with the context within which any improvement in learning and teaching by the use of communications technology is to occur. Three aspects are touched on: the external context of the communication revolution; the internal contexts of the universities and the processes of learning and teaching. The second section focuses on the new technologies themselves in general and specific terms, on relevant research and some of the implications of their use.

The context (the problem?)

The 'communications revolution'. Just as previous centuries experienced their technological revolutions – the 'agricultural' and 'industrial' revolutions that radically changed the worldwide patterns of production and distribution – so the twentieth century is said to be experiencing a 'communications revolution' that is affecting the world situation, not least the world of learning.

* Massey University, New Zealand.

At the centre of that 'revolution' are communication technologies. Some are long established, like radio, television and telephones. Others such as satellites, optical fibre, microcomputers and video recording on tape or video disc are quite new. Among the older ones, radio and television broadcasting have been improved, adapted, put to new uses or linked with newer communications technologies. The result is wider distribution, greater accessibility and more clarity, consumer control and economy. They have also been improved by techniques that enhance recording, text screening and printing and the editing and manipulation of recordings.

There have been spectacular recent developments in telecommunication links that carry signals for telephone, broadcasting and other purposes. The range has been extended by the use of satellites to achieve worldwide links, covering even the remotest islands and overcoming difficulties of terrain or distance to unify countries hitherto fragmented by their geography. Satellite, microwave, optical fibre and other forms of telecommunications linkage give speed and dependability that, in their turn, permit new forms of communications to occur, notably the flow of digitally controlled data from computer to computer. The rapid evolution of computer technology resulting from developments in microchip technology has made possible the storing of information at levels of complexity, and its transmission at speeds, that challenge the imagination. Development costs have been high but widespread applications, user-friendly operations and miniaturization of larger components have brought mass sales and diminishing unit costs. An increasing proportion of the workforce of all countries (but especially in the technologically advanced and fastest developing countries), works in the communication/information sector, updating, recording, transmitting analysing information in vast quantity and at immense rapidity. Development accelerates as new products result from using the information technologies themselves.

The new technology challenges earlier communication technologies to become more effective by combining with the newer means of communicating. It challenges the institutions that train the workforce to provide the skills needed for the production and development of equipment and for effective commercial application and management. It challenges the growing numbers in the communication industries, including the institutions of higher education, to use

the new resources for research, management and teaching. Higher education, at the frontier where new knowledge is evolved and communicated, is especially challenged to exploit new methods of communication as they arise. Particularly in teaching there are new media for instruction, new forms of interaction with students and new opportunities for reaching the minds of more students from further afield.

Higher education. The development of communication technologies has been paralleled by the growth of universities. But in many countries, including those in Asia and the Pacific, they have interacted with one another only to a limited extent. Yet they serve similar purposes – to transmit and exchange information and ideas and to facilitate development of knowledge and understanding.

Some interrelationships do exist. Academic engineers, physicists and mathematicians train those who design and manufacture communications equipment; their colleagues in business schools and arts faculties educate the entrepreneurs and managers of the industries which not only produce but apply new information technology to a greater and greater extent. But do academics employ the new technologies in their teaching and training? How common are classes which use closed circuit television to reach larger audiences or to demonstrate laboratory techniques so that larger numbers can all see? How often are scheduled classes abandoned so that students can spend that time viewing and listening to video cassettes or tape-slide materials which they can schedule as they see fit, control, pace and repeat as they need?

There are historical and economic reasons why large classes still predominate, why traditional lectures constitute the norm, why fixed and uniform time schedules are followed and academics remain untrained in the art and science of teaching. These features can be attributed to the residues of colonialism, increased educational access, the scarcity of financial resources, the questioning of Western educational models (diverse as the French, Spanish, Union of Soviet Socialist Republics, United Kingdom, and United States models are), adaptation to local circumstances and the desire to sustain academic standards, to name a few. Developments in higher education inevitably produce dilemmas – the dominant one, in this case, being whether to allocate resources selectively (thus creating an elite) or to allocate them universally (thus handicapping the development of

specialisms). Not all universities find it equally easy to afford new teaching technologies. Those, with private resources, substantial government or international support, can. Those which are less well endowed and which concentrate on providing widespread opportunity for higher education at as low a cost as possible, and accordingly, use part-time instruction, large classes and other methods for enlarging the student to teacher ratio, would appear to be at a disadvantage. There are, however, considerable numbers of institutions that are dedicated not only to increasing access to higher education but which have made use of communication technologies to accomplish their educational objectives. These are the distance education institutions, sometimes called 'open universities', which combine technology with careful pedagogical principles to ensure the effectiveness of their teaching. The big question then is whether and how the new communication technologies may provoke changes in educational institutions so that educational benefits result.

Learning and teaching. If the new communication technologies are to improve the quality of learning and teaching it is necessary at the start to appreciate the significance of the three key terms – 'learning', 'teaching' and 'improvement'.

In this current context it is worth bearing in mind that learning is what students do, teaching is what the academic staff does and that improvement in ***teaching*** can only be demonstrated if there is consequential improvement in learning. On the other hand, improvement in ***learning*** may occur for reasons that have nothing to do with teaching, for example students are able to spend more time, gain better access to libraries and become more strongly motivated.

As well, from a national perspective, improvement may mean two things; that existing students improve in quality ***or*** that the number of students increases without any necessary improvement in quality.

For the purposes of the present paper, the greatest difficulty resides in establishing that changes in teaching (induced by the technologies) will improve learning. As a later section will indicate, research evidence supporting the connection is rather sparse. Complicating the issue further is the tenuous connection between the teachers' intentions (about what the students should learn) and what, in fact, the students do learn. Students may learn what the teacher

intended them to; they may not. Furthermore, teachers, like others, are fallible, they may not always teach correctly. If follows then that in any learning situation, students may learn correctly what the teacher taught incorrectly or may learn incorrectly what the teacher taught correctly – or fortunately, the opposites.

Finally, although students certainly do learn because of the instruction they receive, they also learn in spite of the instruction they receive. In the process of accommodating to what is being taught students attempt to 'fit' the new experience into their past experience – into the knowledge, insights and understandings that they have accumulated previously. It is this capacity of human beings to transcend their immediate circumstances, to add into their 'learning', their past experiences, that complicates the instructional process and makes it difficult for teachers to tailor the learning experience appropriately for their (unusually diverse) students. As a consequence, instructional strategies are often based on different assumptions. Some deliberately set out to exercise control over the learner by: (i) either trying to exclude outside influences; or (ii) by trying to build beyond them; or (iii) by trying to overpower them. For example some earlier attempts at programmed learning tried to confine student attention precisely and exclusively to the material to be mastered. Other more sophisticated mastery learning programmes attempt to both discover and start from what the learner's basic knowledge is and to provide 'branch' programmes catering for individual differences. Operant conditioning, of course, has always represented an attempt to 'override' other influences, however powerful they might be. Outside these more mechanistic strategies, other instructional strategies have been based on other assumptions. For example, where students are expected to learn by emulating their instructors (e.g. as in medical and veterinary training) reliance is placed on observational 'learning'. However the most widespread practice in university settings appears to be based on a 'cognitive learning' model. It assumes that students will undergo intellectual (cognitive) development by receiving, processing and structuring information, by then integrating it with previous experiences, by storing it in memory then retrieving as internalized knowledge or as a deliberate act of recall. "The point is here that no single kind of learning can be expected to account for all the learning – and teaching – that goes on. Different kinds of things are learned in different ways." Gage, 1978.

Necessarily then, any approach to 'teaching' that involves the communication technologies must entertain the possibility that it too will have the same limitations that beset the human teacher. Insofar as students are students and teaching programmes are the brain-children of teachers, then it must be so. However, in two respects it need not be so: (i) insofar as machines (whether they are micro-computers, video tape-recorders or whatever) are themselves distinctive as deliverers of learning (as teachers if you like); and (ii) the interface between learner and machine is different from the interface between learner and (human) teacher. For example, computers unlike human teachers, can be programmed to have infinite patience, to reward consistently, to back-track without complaint and generally forbear from the temperamental responses that teachers in real life conditions find difficulty in avoiding. Again new computer languages, like LOGO, are claimed to develop in students new logical processes of thought that arise almost accidentally through exposure to the ordered and logical mode that characterises the language.

One major implication of this discussion is that whether or not any given communication medium can be employed to improve teaching and learning, depends on: (i) the teaching strategy overtly or covertly entailed; (ii) the condition of the learners; (iii) the limitations or pecularities of the medium itself; and (iv) the instructional task.

The research evidence that is relevant to instructional design and development will be dealt with later. However, in approaching the general topic with which this paper is concerned, it is well to keep in mind what the purpose of instruction is and whether the intent is to produce a skill learning outcome, a knowledge learning outcome, an additional learning outcome — or, of course, any combination of them.

There is, however, in any instructional situation a logistical element that bears on the use of educational technologies. It arises first because some things can be better learned in large classes, others best in small groups and others again are best learned individually. For universities, teaching ought to be a cost efficient process. That is, the essential criteria of efficiency and effectiveness ought to apply. Efficiency is achieved when what is taught is taught well — with maximum return for least expenditure. Effectiveness is achieved when what is taught is worth teaching — is valuable in its own right.

Clearly, the communication technologies provide scope for different logistical solutions. For example, formal lectures televised and relayed by satellite permit 'classes' to be defined in far greater numbers than hitherto and with considerable cost saving. However, lecturing as a teaching strategy has its limitations and may be less effective than other methods. Again, microcomputers can be used to individualize instruction and allow students to proceed at their own pace and in their own time – a procedure that is often pedagogically very efficient. However, the provision of microcomputers in quantity is expensive and cost, relative to efficiency, can be excessive.

Technologies (the solution?)

General considerations. In focusing on the technologies, this section first notes some general features, then provides a brief description of more relevant developments, then reviews the status of current research before finally arriving at a number of conclusions.

All technologies of teaching and learning, from the traditional chalkboard to fibre optics place constraints on, and offer opportunities for, effective and efficient university teaching. They all place varying emphasis on the various channels of communication, on the degree of passivity or activity of the learner, on the degree of dependency of the student and on the resources of the instructor.

Contrast, for example, the face-to-face lecture with computer-aided instruction. In the first, the passive student attempts to record, in public, under time constraints, the lecturer's personally constructed educational message so that learning and understanding may subsequently occur in private. In the second, the student, in private, interacts with a computer programme (devised by experts) at a personally suitable pace and with regard to personal existing understandings and knowledge.

If traditional teaching 'methods' are considered as communication technologies much as microcomputers, television, radio and teleconferencing are, then all the various technologies can be seen to have a range of learning activities linking them to specific goals. Technologies ***per se*** do not have some inherent capability which make them applicable to all situations, for all students, for all types of learning. Rather it is the manner in which they are used which determines their usefulness. For example, the essence of education lies not in the technologies employed but in what both the instructor

and the student do with technology to promote the learning process. Microcomputers are a case in point. They are new, expensive and appear to promise enormous possibilities for education at all levels. However if the educational software simply replicates the attempts at individualized instruction of the teaching machines of the 1960's then their potential will never be realized.

In trying to evaluate the effectiveness of any new technology it has commonly been the practice to use normative methodologies based on traditional methods of teaching. Such a methodology simply compares the new technology with traditional teaching to see if it can do the same things better, rather than asking for more critical questions, i.e. is the desired goal for this particular type of learning achieved, for this particular type of course, for this particular group of students and can it be done equally well using another cheaper technology?

This suggests that those considering the use of modern technologies at the tertiary level should endeavour to define the learning goals for each particular episode, and consider the relative competency of different technologies for meeting them.

Where education technologies are involved, however, it has become conventional to have regard for four essential elements: (i) hardware; (ii) software; (iii) personnel; and (iv) organization.

i) ***Hardware.*** The hardware concept covers the equipment aspects of the technology, and the constraints and opportunities it provides for the student and the instructor to achieve learning.

Hardware places severe constraints on the use of modern communication technologies in education. It can dictate the type of learning which will follow, the nature of the programme design, the level of participation and activity of the learner, and organization needed to enable learning to take place. Good examples of such constraints are found in broadcast vs tape and disk technologies. There the development of the ubiquitous audio cassette meant that the control of radio broadcasting over content, timing, integration with other media such as photographs, slides, and printed matter could be passed to the student and that consequently a great diversity of programmes could be developed.

ii) ***Software.*** Software characteristically refers to the programme designed in a form appropriate for use in the relevant hardware.

Educationally, the type of software should be related to the level and nature of the learning. For example, content bound software which provides highly structured learning episodes might be highly appropriate for introductory basic courses but inappropriate for advanced courses.

Software often becomes course, institution and culturally specific. Because of this and the cost in time and manpower needed for its development and subsequent updating, it becomes the single most difficult element in the educational equation. Equipment is often easy to obtain compared with the expertise required for the design and development of software.

iii) ***Personnel.*** This notion encompasses the need for trained personnel to design software and use the technology. Included are instructors who require expertise in the development of software, the teacher who is using the technology and the student who needs to know how to operate the hardware and software to its best advantage.

iv) ***Organization.*** This refers to the organization required to integrate the technology into the education instructional processes. Such organization is required at a macro- and micro- level. At the macro- level there needs to be an organization which is concerned with delivery systems, the maintenance of the hardware, the general servicing of students, general administration and so on. Generally speaking, distance education institutions require a large administration group to maintain the many forms of contact between the institution and the student. Even a simple technology such as the audio cassette requires a macro- organization to record, duplicate and despatch programmes. Micro- organization is concerned with course specific questions. How will the students organize their study programme? How will they integrate the technology into their study style? How will the instructor ensure the student understands what to do? If the technology is to be used in a group or at a centre how will the students contact each other and so on?

The trend of new technologies is towards the promotion of individualized instruction. In many countries individualized training programmes using new technologies are a well established part of industry. In many other countries larger businesses are turning to such methods to train and retrain their staff. The focus in this

process of individualization is the learner and what he or she must do to learn effectively. As one student put it "ultimately, learning is a private activity carried on by consenting parts of the brain", i.e. each student is the focus of his or her own learning whether it is carried out in a crowded classroom or in a study centre or in one's own home.

The individualization of instruction is not merely a reflection of a psychological ideology but reflects a pragmatic recognition of the learning advantages that follow when (adult) students can have a degree of control over the ***processes*** of their own learning. However, attendant problems arise. Distance education provides an illustration that is not exclusive to that mode of instruction.

In one university, which has had 25 years experience in distance education, 10 per cent of students withdraw within a month of receiving initial study material. Students are more likely to withdraw in their first year of study than at any other time. The challenge to course instructors and designers then is to devise ***support systems*** which enable students to survive this initial adjustment period, which is not only concerned with academic matters such as study techniques, and organization, but also with making adjustments to other life priorities in the home and in the work place. Without support of academic peers and university staff, students often see no other options than to give up study.

Individualization has led to the coining of a further new word, 'narrowcast' to contrast with broadcast.

Narrowcast technologies are those which generally: have highly goal specific content; include material which is essential to the study programme; require a high level of student participation; are arranged to allow student management of the technology; and employ active or interactive technologies.

It is important to note that many kinds of hardware may be used in either broadcast or narrowcast modes while others which are primarily broadcast are extremely difficult to use in any other fashion.

Some specific technologies

Word processing. Print, the oldest educational technology of them all, has been revolutionized by the word processor. Word

processors, used by students, provide scope for the creative manipulation of their written work whatever their field. For institutions, they are important as they provide the means by which they can continuously upgrade their printed materials. The biggest advantage of a word processor is that it allows rapid and frequent revision of textual material. This means that commitment to long run printings with high storage costs and fixed and dated materials can be a thing of the past. Well presented, student oriented, study material can be easily prepared and new knowledge quickly disseminated.

Radio. Broadcast radio provides a convenient means for transmitting a (verbal) message to a widespread audience. Traditionally used, broadcast radio which has a long history of usage in distance education in many countries displays some of the less satisfactory educational features of the broadcast mode – notably that it is transitory. Programme material must be general in nature (because students may not be available at broadcast times) and the capability of feedback is lacking. Where there are few or no alternatives, radio can be used with some success to reduce student anxiety by providing reassurance and, at least, one-way contact with the teaching institution.

Audio cassettes. Audio cassettes are to radio what video cassettes are to television. They provide the student with the means of controlling the rate, timing and amount of learning. For the institution and for the instructor they provide a cheap means of speaking to the student directly; providing precise instructions on how to go about tasks, listening to the students response to a series of questions, providing a component in an audio-visual package (with tape slide, tape photo, or tape book). They can provide resource material such as discussions, interviews, case study, language exercises, step by step analyses and so on. Where audio cassette recorders are available, radio can provide a means by which narrowcast material can be swiftly disseminated. The programme is broadcast for the student to record and use at a later time. The combining of group listening with cassette recordings also provides opportunities for extending radio to provides narrowcast capability.

Broadcast television. The history of broadcast television is littered with failed attempts to devise methods to use a medium which appears to promise much but in fact, seems to deliver so little. Many systems of broadcast, closed circuit or one way cable, have

been attempted in the last 20 years – with varying degrees of educational success.

Television broadcast technology is typically costly to run, costly to make programmes for, educationally superficial, often contrived to fit other broadcast requirements (such as being a predetermined length), is expected to entertain and is often restricted by programme scheduling to the non-peak viewing times of the day (when the student audience is often at work and cannot watch anyway). There are some notable exceptions where scheduling and programme length is not a major constraint and where communities organize groups to watch specific programmes. However, the passive transitory time-based nature of the technology still remains.

Broadcast television programmes can be used in a similar way to radio programmes. However, there is the danger that the programme might degenerate into a 'talking head' broadcast in which case radio or audio cassette would do the job more economically.

There are good non-educational reasons for using broadcast radio and television. One of the most important is the public relations aspect. Often the viewing audience is made up of the public who watch, listen and learn on a casual basis and may become future students of the university.

In summary, ***broadcast*** techniques are demonstrated by the classic broadcast mediums of radio and television. The nature of their delivery systems make it difficult, if not impossible, to truly consider the active or interactive participation of the student. Any of the following ***narrowcast*** technologies can be misused in a similar fashion.

Slow scan television (SSTV). SSTV is essentially a document transfer system which is often associated with telephone teleconferencing, or early low-powered satellite systems. As a communication system SSTV has useful applications where: (i) illustrative material generated during a tutorial session needs to be transmitted to students immediately; and/or (ii) where a mail or postal system is unable to ensure mailed documents reach students in time.

Video cassettes. This new development has the potential for providing instruction within a university and in the wider life of informal continuing education. However, in everyday use, VCR's fulfil an entertainment role. It will be some time before instructional

procedures are developed to take full account of the control the learner can have over the medium and the depth of learning which may be accomplished.

The potential advantage of video cassette lies in the fact that control of the equipment and the learning process is placed in the hands of the learner through control over the mechanics of the machine, i.e. stopping, starting, timing, reviewing and previewing, and consequently the capacity to order the sequence of events controls the rate of learning, and facilitates practice sequences.

The potential exists for providing the basis for learning a wide range of motor, intellectual and cognitive and interpersonal skills, as well as affective aspects. These are important aspects which printed materials cannot deal with adequately.

This facility could be particularly useful where distance education programmes are involved with updating skills and techniques of workers in the field. For example, new horticultural techniques can be transmitted to field workers to improve farming techniques. Mid-career retraining can also be catered for.

In some countries as a way of regionalizing a centrally produced programme, video cassette programmes are being built round the study centre concept, a location where several video machines are available to which students bring their study notes. The students run the programmes as individuals. Sometimes study centres provide for group sessions during which video cassettes are played. Unless some supplementary teaching is provided, this technique can become another version of broadcast technology.

In other countries some institutions assume that students can gain access to such equipment and make programmes which will be used on an individual basis as either supplementary learning material or integral to the teaching programme.

The problems associated with video cassettes are of two kinds: (i) cost; and (ii) production of programmes.

i) The cost of producing video cassette programmes is usually lower than that required for broadcast television programmes because they need fewer, less elaborate 'props', do not require potential 'actors' and accept a less rigorous standard of production.

Unfortunately, however, equipment costs cannot always be kept down by using lower quality equipment. Cheaper equipment formats do not enable technical material such as animal or plant tissue to be represented adequately or tapes to be reproduced in quantity without loss of fidelity.

ii) Video production for educational purposes calls for new techniques different from the entertainment modes. Producers, directors, scriptwriters need to be knowledgeable about teaching and learning. Many of the old techniques of film and television will no longer be of use. For example, the very basic concept that programmes must have a beginning, a middle, and an end will no longer apply as a cassette could just as easily consist of a series of short video events which sets a problem, teaches a technique, or brings together a range of visual material to make concepts or principles clear.

Video discs. Video discs (read by lasers) are capable of storing up to 55,500 individually numbered pictures. This gives about 37 minutes of continuous playing. However, the advantage of the disc lies in its capacity to permit immediate access to any one of the 55,500 individual pictures and its ability to hold that picture on the screen.

The disadvantages of video discs are: (i) the high cost of producing the master laser disc (this is in addition to producing a video tape master); (ii) the high cost of players; and (iii) the fact that it is a 'play only' device that cannot record.

While a great deal of research money has gone into video discs in equipment and software development it is fair to say that as yet it is in its infancy.

Microcomputers. The effective use of microcomputers in education will probably depend on three factors: (i) the way in which they are interfaced with other technologies such as telecommunication systems and video tape; (ii) the appropriate design of software; and (iii) the cost structure.

Integrated. Connected through conventional telephone systems microcomputers have the capacity to act as intelligent terminals for other large computers. Such mainframe computer systems as Teletext and Prestel may run as electronic mail centres or may be dedicated to running distance education programmes of instruction and

management and administration programmes. There are several ways in which microcomputers may act in this environment. The student, by linking with the mainframe computer, may receive an instructional package then terminate the link. The student then works on the programme and resolves questions, then restores the link and loads the work done. This may be computer assessed or accessed by the tutor at his convenience. Results and tutor comments may then be accessed by the student. An alternative method would be to link with the mainframe while carrying out the assigned tasks. The microcomputer would act as a 'dumb' terminal. This system is expensive in terms of telephone charges.

A third system is to despatch programmes on diskettes to students through the postal system. The disadvantage is the slow turnaround. This may be particularly important in courses such as statistics where rapid knowledge of results is essential if students are to make satisfactory progress.

Added to the cost of diskettes and mainframe and telecommunication charges, are the cost of microcomputers themselves. These vary widely and may be well beyond the financial scope of students.

It has been suggested that such expensive resources are beyond the means of many institutions and that the money would be better spent on updating libraries. There is some truth in this; however books date quickly and it may well be that the life of a microcomputer system extends well beyond the viable life of a textbook. Further, if computers are used for the right courses they are far more effective than books.

The greatest long term problem (again) is not the hardware, but the design and preparation of software which will achieve the goals of the instructional design.

Interactive technologies. Interactive technologies are those which usually combine two or more ***technologies*** together to allow the students to interact with the combined resources to facilitate their own learning. With careful planning many technologies can be made to be interactive to a greater or lesser extent. However, the archetype of interactive technology is the video/computer combination. The video may be in the form of video disc (faster access, fine quality still frame) or video cassette (cheaper to make, slow access, little or no still frame) and a microcomputer.

This combination is at the cutting edge of educational technology and a great deal of experimentation is required by users before it can be said to be a truly cost effective technology. One of the greatest problems of all new technologies is the bandwagoning effect. As soon as a new technology appears a first wave of enthusiastic users rushes to try it out only to lose interest when the need for sustained effort and patience becomes apparent. Unfortunately, first wave enthusiasts often collect the resources as they sweep along making it difficult for the second, third, and later waves to develop viable software. The lesson is that once adopting a technology an institution must be prepared to adequately resource it so that it may be developed to its fullest potential over a long period of time.

Research on communication technologies. This section relies heavily on materials produced for a recent international conference* which surveyed developments in educational applications of the 'new information technologies' and assessed their status. It has been used because the materials provide a useful and unique opportunity to address two key questions about the use and development of communication technology in developed countries and to relate them to the unique circumstances facing developing countries. The purpose is not to use the information as a model for emulation – quite the contrary. The purpose is to consider how experiences elsewhere can be turned to advantage so that errors and omissions can be avoided and opportunities for accelerated progress seized.

The key questions are: (i) how have the communication technologies come to be defined in practice (i.e. 'in what ways are they being used in national systems'); and (ii) what does education research indicate about the technologies?

The operational definition of communication technology

All OECD countries now have in place their policies and developments for introducing the new information technologies into education; but the policies vary greatly and rationales have changed over the years. The countries surveyed have all been influenced by the restructuring effects of technology in general, its penetration into all spheres of society, education's increased responsibility with

* International Conference on Education and the New Information Technologies, CERI, OECD, Paris, July 1984.

respect to the labour market and developments in educational technology itself. Whatever pressures have existed, however, have served to influence education to introduce the new information technologies to :

i) Produce specialized (computer literate) manpower;

ii) Develop as a market for the national and multi-national electronics industry;

iii) Prepare (to some extent) the young for living in a technological society;

iv) Remedy deficiencies in the education system (e.g. with low achievers, the handicapped, the gifted);

v) Improve the (administrative) efficiency of the education system in general, and to reduce costs; and

vi) Demonstrate that education is 'up-to-date' with world developments.

Such pressures are not exerted equally in all countries nor responded to identically. Priorities vary.

However, the results of a detailed survey of the use of new information technologies showed that within the school system the new information technologies predominantly meant 'microcomputers'. These were proving to be pervasive, finding their way into secondary, and to a lesser extent, primary level either through official development programmes (extensive in the case of France, less so elsewhere) or spontaneously. Clearly, the new information technologies are well-established within university systems though their use for teaching purposes has been relatively limited. The most impressive teaching developments – in quantity, extent and variation – are to be found associated with distance learning. The Open University in the United Kingdom makes extensive use of television broadcasting, so does the University of the Air in Japan. Extensive use is also made of both broadcasting mass media – television and radio in distance teaching at university level outside the OECD countries, e.g. Korea, Pakistan, and China.

Research tends to show that within universities, the initial process of acquisition of technology is usually haphazard, unplanned and uncoordinated. Opportunities to acquire hardware are seized by

departments – often in advance of the availability of suitable software and certainly in advance of the capabilities of the personnel available. It seems that only when a critical mass of appropriate hardware, relevant software and competently trained personnel exist, can development become systematic and coherent.

It seems apparent that, as yet, none of the very advanced technologies has been used to any great extent anywhere. Accordingly, research demonstrating advantages and disadvantages is not available.

The dilemma facing countries as they contemplate taking initiatives to use communication technologies for improving educational methodologies and practices is whether to employ proven technologies or venture with the unproven. The latter carries the prospect of reducing any 'educational gap' faster but carries as well the risk of failure. The former minimises the risk of failure but decreases the rate at which an imbalance might be redressed.

In general the situation obtaining in the OECD countries is that:

i) Development of communication technologies in education is proceeding at pace;

ii) It still represents only an embryo of what the 'new' educational world could be;

iii) That research is needed to enable pedagogical and technological 'know how' to be effectively combined; and

iv) The emphasis placed on microcomputers is based on assumptions about the infiltration of technology into everyday (home life) – an assumption not equally valid in all societies.

Educational research and the technologies. One of the most salutary statements in the OECD/CERTI documents is: "Not enough experience has been gained with the new information technology to determine how that technology can most benefit learners or to predict possible negative effects of its use."

However, such a statement needs to be seen in context, in that it was predicated on the assumption that new modes of teaching and learning might be catered for by the new technology. What is not at issue is whether the technologies are useful as media for transmitting old (established) modes. For example, it seems self evident that a lecture is little different when received by a student on location or via television 2,000 miles away – unless some form of personal

interaction occurs in the first instance. The use of transmitting media to enlarge the educational catchment area can make a substantial contribution to eliminating inequality of access to education. However, the use of 'special' technologies in select locations has the prospect of increasing inequality of access; a matter of concern in the conference papers.

The main thrusts of educational research identified in 101 universities and 21 other institutions of higher education in nine countries (Australia, Belgium, Canada, France, Ireland, Japan, Sweden, United States) were shown to be on :

i) The computer as a learning tool;
ii) Development of educational software;
iii) CAI (Computer Assisted Instruction) outlining languages;
iv) Input and output devices;
v) Man/machine interaction;
vi) Individualizing instruction; and
vii) Computers and the learning process.

Here again, the saliency of microcomputers becomes apparent – and also the assumption of their increasing availability, even to the extent that most, if not all, students would be able to make frequent use of them.

In short, there is little educational research that shows that the new communication media are better or worse for transmitting educational messages to individuals. Their educational quality is dependent on the quality of the teaching reflected either directly or indirectly through them. Predictably, a televised lecture by a virtuoso is likely to be more educationally effective than a face-to-face lecture by someone of mediocre competency. But the reverse applies as well. Where some of the media have definite superiority is in the range and scope of transmission and, therefore, the size of the possible audience. Furthermore, under certain media circumstances, students may select their own learning times and rates (e.g. through the use of accessible microcomputers and video tape-recorders). Computer-assisted instruction that has the capability for learner-machine interaction and, therefore, individualized instruction is not yet extensively developed. Experience tends to indicate that software developed elsewhere normally needs adaptation for use in any given country and, in many cases, because it is amateurish and pedagogically unsound, is entirely unsuitable.

In one of the OECD papers devoted exclusively to higher education, some attention was given to new educational application of new technologies. Noting that 'new educational functions were emerging' the paper described a number of technologically advanced multimedia systems in use in several universities in the United States, Japan and the Federal Republic of Germany and elsewhere. However, it was quite apparent that evaluative research that sought to gauge their pedagogical efficiency was lacking. Although the systems, whether Computer Assisted Instruction (CAI) or Computer Managed Instruction (CMI), or something else, look extremely interesting, there is, as yet, no secure basis for concluding that any is educationally beneficial.

Most of the countries surveyed were experiencing common 'courseware problems'. Most of the existing courseware was of poor quality, was costly to develop, lacked compatibility between machines, was often pedagogically inappropriate and its effects on teaching practice were not known.

Further research is needed before it will be known that the use of New Informational Technologies do make a pedagogical difference, and the extent to which they may prove to be an effective substitute for or complement to traditional teaching procedures.

The preceding paragraphs carry the implication that if the new technologies are to improve university teaching, they might do so: (i) by making it more accessible to more people; or (ii) by raising the standard of learning through the use of better teaching practices. This last prospect depends, in large measure, on the way 'courseware' is designed, developed, produced, transmitted and eventually accessed by the potential learners. Discussion follows.

There is no scope here to dwell on the substantial body of knowledge about learning and teaching that is available within the discipline of education. It is sufficient to note the existence of research, theory and practice-based relevant literature.

As well, it is worth noting also a comment from the OECD paper on higher education.

> . . . the compelling instructional style that the new technology affords, through the combination of many talents. The ideal situation . . . would be to have a group to develop such courses which would include 'a scholar deeply

> versed in the subject to be presented . . . who must also be a talented and sensitive teacher . . . these academic skills must be combined with the skills of graphic designer, with the image-oriented 'filmic' skills of the motion picture director, with actors able to read passages of text . . . film clips and in some cases the services of animation studios.

What is at issue in pedagogical transmission is the selection and presentation of a message that is first, appropriately tailored to the learning needs of the receivers in that it is both understandable and intellectually enticing and second, in that it is academically worthy. For those who produce such courseware, pedagogical skills are needed so that the learning condition of the receivers can be appreciated and the message presented in a manner that will result in the desired learning. The technical skills of courseware design, production and presentation are needed to maximise 'impact' and to help create both intrinsic and, where necessary extrinsic, motivation.

Whether the 'medium is the message' may be debatable but clearly the medium may importantly influence whether the message is received, how it is received and how the receiver will react to the message.

Courseware, designed without due regard for the condition of the learner, the limitations (and strengths) of the medium and subject mastery desired, will be less than fully effective. Clearly, however, the more complicated the design, development and production process, the more expensive it is likely to be. As ever, costs will need to be weighed against presumed benefits. It is perhaps worth noting in passing that in comparison with the high cost procedures used initially by the British Open University (but less so recently), that smaller and less affluent countries have used relatively low cost procedures for developing their own courseware for distance education.

A further word of caution needs to be added. Some evidence from both developed and developing countries seems to indicate that mass transmission methods have their own drawback. If the mass transmission is available only at a specified time and is thereafter inaccessible, students tend to 'drop out' more extensively. The ideal 'technological learning package' appears to be one to which students can gain access as they need – repeatedly if necessary. This tends to place an emphasis on hardware that is individualized – with the consequent problem of accessibility and cost.

Conclusion

The net outcome of the discussion above can be stated in very simple terms.

The new communication technologies have the potential to improve learning and teaching but how they do so depends on recognizing the distinction between qualitative and quantitative improvement.

The use of mass communication media to reach larger audiences (irrespective of whether the audiences are themselves en mass or dispersed individuals) has the capacity to increase the quantity of teaching and learning. The most economical practice is to broadcast rather than narrowcast and predictably radio is less expensive than television and the use of existing station networks cheaper than new and satellite networks.

The ***quality*** of learning can be improved if the quality of teaching used in the new communication media is superior to that which it replaces. The less efficient the existing teaching practice the easier for the new communication media to produce an improvement. However, the media themselves have no magical attributes that, as it were, automatically ensure better learning. As the new media have been used so far, there has been a tendency to employ better teachers to provide the 'message' that is thereupon relayed.

As all communication media require pedagogical courseware, the quality of learning they produce depends very much on the quality of pedagogical courseware produced. Whether the medium is radio, television or computers the development of appropriate courseware requires technical and professional skills. The development of such skills and their subsequent effective use are both costly and often time consuming.

Implicit in any discussion of technology as a means for improving teaching is the hope that it may prove to be the 'philosophers touchstone', to be the magic means for converting bad teachers into good. Such a hope is without foundation. Training is still, as ever, a necessary pre-requisite for most would-be teachers. Insofar as teachers may become newly involved in technology-based production they may become exposed to new teaching practices. Even so, trial and error learning is no adequate substitute for the effective training of university teachers.

There is, then, a critical mass of ingredients that needs to exist before any comprehensive media-based instructional programme can be developed – viz. appropriate hardware, appropriate software and personnel skilled in their use. The less adequate that critical mass is, the poorer the quality of teaching and consequently the poorer the quality of learning.

Finally, there are strong indications that learning quality is improved if the communication media can be accessed and used at the discretion of the learner. Learning is, in the last analysis, a private affair. To the extent that individual learners can exercise control over when they use the media, how long they may use it and what they may ask of it (how they can interact with it), to that extent is the quality of learning likely to be greater. Unfortunately, so is the cost.

That said, it is also true to say that the use of new communication technology for teaching and learning does have the effect of raising the level of awareness of the implications of good and bad teaching. It thus serves as an inducement to organizations and individuals to consider and undertake ways of improving the general quality of learning and teaching.

The communication technologies are thus an important element in the evolution of a more effective and efficient higher education system.

References

Gage, Nathaniel. ***The scientific basis of the art of teaching.*** New York and London: Teachers' College Press, 1977.

O.E.C.D. Centre for Educational Research and Innovation, International Conference on Education and the New Information Technologies, 9-12 July 1984.

Working papers, notably:

CERI/NT/84.02: ***The introduction of the new information technologies: policy trends and developments in member countries.***

CERI/NT/84.03: ***Higher education and new technologies: trends and issues.***

CERI/NT/84.04: ***Research and development relating to the application of the new information technologies.***

CERI/NT/84.05: ***Software and courseware for a multi-media educational environment.***

CERI/NT/84.11: ***Education and new information technologies: overall trends and issues.***

SECTION TWO

DISTANCE EDUCATION IN COUNTRIES OF THE REGION

Bulletin of the Unesco Regional Office
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DISTANCE EDUCATION – COMING OF AGE

Rationale

Distance education is coming of age in these days of microchips and communications satellites. But while new technology is bringing glamour to this field, radio and correspondence courses still form the backbone of distance teaching methods in Asia and the Pacific. The reasons for developing distance education – different in every country – are very closely linked with population and geography. On the one hand we have the heavily populated countries of South Asia, where the large numbers of learners place a tremendous pressure on the formal education system. In Pakistan only 52 per cent of children in the 5-9 age group are enrolled in primary schools and there is an annual increase of more than 2.8 million in the number of children who need schooling. At the same time there has been little growth in the formal educational system. In Sri Lanka most children have easy access to schools and the literacy rate is high, but heavy recruitment of teachers in recent years has meant that over one-fourth of them have no teacher training. Both in Pakistan and Sri Lanka, as in Nepal, a major reason for beginning distance education has been for training teachers.

At the other extreme is New Zealand, where the population is thinly scattered and accelerated urbanization since the Second World War has meant that some rural schools have been closed for lack of pupils. Since 1922 distance education has been available to children in remote areas through the New Zealand Correspondence School. Today New Zealand's well-developed system of correspondence education also serves the scattered islands of the South Pacific.

In the Philippines, India and Indonesia, distance education is being developed at the secondary level to bring primary school graduates who have had no opportunity to go on to high school back into the educational mainstream.

A major impetus for distance teaching in the Republic of Korea came from the large number of students who failed to pass the

university entrance examination. Their desire for higher education resulted in the birth of the Korea Junior College of Correspondence in 1972. Open universities, patterned on the United Kingdom model, are one of the most popular forms of distance education in Asia. As in Korea, increasing pressure for access to higher education is behind this trend. At the same time it reflects a growing belief that education should not be restricted to one age group, social class or geographical area, but should be accessible to a broad segment of the population. Thailand, India and Pakistan are three of the countries in this region that now have functioning open universities.

In addition to serving as a parallel system of education (usually at the secondary and tertiary levels), distance education can also play a supportive role within the formal school system. The advantages of classroom radio and TV instruction are very obvious: individual students are provided with a greater variety of instructional materials than can be prepared by individual instructors; students have access to expert teaching in certain specialized subject areas such as applied mathematics and physics; regional differences in the quality of schools can be decreased; and classroom instructors can themselves learn improved instructional skills from the television or radio instructors.

Distance education, however, can be a vehicle for life-long learning that need not be geared towards qualifications or re-entry into the formal school system. Its varied media – radio, television, printed modules, cassettes – can also be used independently for adult education. Today health, child development, nutrition and general parental education are common concerns of distance education.

Constraints

As an alternative to face-to-face teaching, distance education has yet to gain full acceptance. Many students and educators still consider it to be second-rate and the second-choice education for those who for some reason did not make it in the formal system. A way round this constraint can be found in New Zealand and the South Pacific, where equal status is awarded to the degrees given in the conventional and the distance teaching systems. As the two systems are fully integrated, learners can transfer from conventional to distance education and vice-versa. This situation points up the strong need in most other countries of the region to take a more confident approach to distance education.

The expense of distance education is another constraint to its full development. One of its most important goals is to provide new opportunities to those who for socio-economic reasons could not remain in the formal system. As it is, in most cases, not designed for learners who can pay, distance education will remain largely dependent on government support and subsidies; it must, therefore, be viewed as a long-term investment in a country's future. In terms of its cost effectiveness and the large numbers of people it can reach, however, distance education does not appear to be an extravagance.

On a more practical level, the lack of trained personnel to develop distance education materials is a stumbling block. Most of the people working in distance education have come from the formal system and are attuned to the methods of traditional education. Their new roles demand a new set of skills and attitudes. Personnel must be reoriented and retrained for their changed task. Qualified producers, script-writers, technical support staff and presenters are all required. On the receiving end, the classroom teachers who will use distance learning methods must be trained to take full advantage of them.

In at least one country, Korea, limited radio time for educational programmes has been a severe drawback. The allotment of broadcast time for the Korean Correspondence University is too small to handle the increasing number of subjects to be taught, and TV lectures are not yet available. Eventually the University hopes to be given permission to operate its own radio-TV transmission system.

Distance learners in remote areas may be confronted with communications problems. In Australia, where distance learners depend on printed materials, mail service may be slow and feedback too infrequent. Indonesia has experienced difficulty with the quality of radio transmissions – in remote areas educational broadcasts are not always received clearly. Increased use of audio cassettes is one possible solution.

Afghanistan

The Democratic Republic of Afghanistan has an unusually high rate of illiteracy: in 1978, 90 per cent of the population was illiterate and only a minority of children were in schools. The government is thus urgently looking for ways to improve the education picture.

The structure of the school programme is changing, as are the textbooks. New methods and materials are being introduced to teachers through seminars and in-service courses. The government is also studying ways to use distance education to reduce illiteracy and is keen to learn from the experiences of other countries in the region.

Already a general system of distance education is being implemented through radio and television. General education programmes aimed at children, adolescents, adults and illiterates are on the air. Not only teachers and children are being helped by these programmes, but parents, too, are learning new attitudes towards their children's education and upbringing. No evaluation of these programmes has yet been carried out, however, so little information regarding their effectiveness is available.

The newest distance education programme in Afghanistan is the Distance Training Programme for Teacher Educators, at the Masters Degree level. This was due to begin in August 1984.

Australia

Primary and secondary. Australia's large area and small, unevenly dispersed population make distance education almost indispensable. Western Australia, for example, is approximately the same size as the whole of western Europe, but has a population of less than 1.2 million, most of them concentrated around the city of Perth. In these circumstances the provision of education is an expensive and difficult undertaking.

The majority of Western Australian children who live beyond the range of school bus services study at home until they finish year 7: even after this many undertake secondary studies at home. The Western Australian Correspondence School provides courses from Years 1 to 10 for students who do not have access to schools. Annual enrolments in the Correspondence School have levelled off at between 400 and 600 primary students and approximately 100 secondary students.

Primary courses consist of the basics – reading, spelling, English, writing, mathematics, social studies, art and religious studies. Secondary school courses are English, mathematics, social studies and science (the core subjects) and art, health education, book-keeping and commerce.

Lessons are divided into 20 sets of work, which students must complete and forward for marking every two weeks. The textbooks, mainly written by staff of the Education Department's Curriculum Branch, are issued free to students. In addition to written materials, students now work with audio cassettes, slides, filmstrips and video equipment, enabling the development of a greater range of skills.

Prompt feedback on completed lessons is an important part of the learning process, but is not always easy to provide in this situation. The mail is sometimes disrupted or lost, and inevitably some lessons must be done twice. In some areas residents receive mail only when they travel to the nearest town – which may be as far as 300 kilometres away.

Staff of the Correspondence School are selected for their interest and their ability to relate to isolated children in a correspondence teaching programme. Appointments are for no longer than two years, so that all staff have recent, relevant classroom experience.

'Schools of the Air' – small units located in regional towns – supplement correspondence courses for more than half of the primary students. The main function of these two-way radio schools is to provide extra material in each of the subject areas, as well as experience in areas not covered by the regular courses. Only primary students may enrol with these schools. Groups of five to ten pupils from each Year level have a half-hour lesson each day, during which time they may listen and talk to their teacher and to each other. This enables more rapid feedback than the mail system and children gain a group identity. In addition, parents' queries, oral reports and examinations may be presented. There is also an itinerant teacher who visits isolated families to provide on-the-spot assistance.

In Western Australia, the Isolated Students Matriculation Scheme (ISMS) gives tutorial and material support to isolated students taking Years 11 and 12. Courses in English, History, human biology, biology, mathematics, technical drawing and art have been prepared, while development of other courses is continuing. All are recognized Tertiary Admission Examination subjects and follow syllabuses comparable to those of the regular schools.

Learning materials produced for the ISMS include audio-visual aids, such as cassettes and filmstrips, and written notes and tests. Each student receives on loan a cassette recorder and a slide and film-

strip viewer. The written medium, however, continues to be extremely important to these students.

Each of the 12 tutors on the staff of this scheme is a senior teacher responsible for as many as 35 students. Contact is usually by mail, and less frequently, by telephone. Opportunities for face-to-face contact have been provided through camps for students, which are held in Perth twice a year.

There are also regional tutors, who visit students in their homes and provide advice on careers, courses and study. To date the overall performance of ISMS students has been impressive: in 1978, for example, of 25 students who took the Tertiary Admission Examination, seven were accepted into tertiary institutions.

Tertiary. The Darling Downs Institute of Advanced Education in Queensland is an Australian model of distance education at the tertiary level. In this model internal and external teaching are fully integrated. Darling Downs started as an institute of technology in 1967 and still is vocationally oriented. There is an effort to see that its programmes of study meet regional demands and do not overlap with those of the University of Queensland. The majority of its students are recent secondary-school leavers, although Darling Downs also has some adult students.

In 1983 the Institute had approximately 4,500 students, over half of whom were external. Many of the external students are already employed, and in general, graduates of Darling Downs have good job security due to their professional qualifications.

There are five schools in the Institute: Applied Science, Arts, Business Studies, Education and Engineering. A Department of External and Continuing Education handles all aspects of external teaching by working closely with the five schools. The Department, in turn, is divided into five sections: Instructional Design, Outreach, Continuing Education, Research and Evaluation and Production.

The Outreach Section provides support to external students through a network of regional liaison officers. There is also a telephone service, through which students are able to leave messages at night, early in the morning, or during the weekend. These are recorded, and responses are sent back as quickly as possible. Telephone tutorials may be pre-planned or on request. Regional Study Centres in some cases contain loudspeaker telephones which allow lecturers

at the Institute to conduct tutorials simultaneously in up to five centres. This service not only enables students to generate discussion and to exchange ideas among themselves, but also facilitates immediate feedback from their lecturers, as in the classroom situation. Some of the Study Centres now have computer-managed learning programmes in addition to the telephone tutorials. One medium Darling Downs has not been able to take advantage of, however, is television, as they have been unable to purchase commercial television time.

The External and Continuing Education Department believes that teaching materials should require a minimum of face-to-face contact. The Regional Liaison Officers are available, though, to counsel students regarding administrative as well as academic problems. In addition to the Study Centres, there are also residential schools which provide instruction that cannot be readily provided at a distance, such as laboratory experiments.

Teacher education. Pre-service teacher training is offered at a distance by a number of universities and Colleges of Advanced Education. Distance education for in-service teachers takes the form of degree courses in education, post-graduate diplomas in various aspects of educational studies and post-graduate degree courses. Instruction is done largely through print materials. Teachers working in the Technical and Further Education sector are often trained during their first one or two years of employment as teachers. Such training is offered at a distance by some Colleges of Advanced Education.

Bangladesh

Distance teaching activities started in 1978 in Bangladesh, when the Japanese government gave assistance to develop a school broadcasting system. The aim of the project was to improve the quality of teaching at secondary school level. The Japanese supplied 1,100 audio control console sets consisting of radio receivers, amplifiers, cassette recorders, public address systems and speaker facilities for classrooms, along with ten mobile audio-visual vans.

During the implementation of the school broadcasting project, the Government became more aware of the potential of different media for distance teaching. At this point it was decided to merge the Audio Visual Education Centre and the school broadcasting programme to form the National Institute of Educational Media and Technology.

The Institute is now working on a scheme to introduce an integrated multi-media distance teaching system. Initially this would use printed materials, radio and television broadcasts, group study and audio cassettes for teacher education. Later the programme could be expanded to other areas, ranging from primary to tertiary education.

Among the likely benefits of such a scheme are the following:

1. Through media-based distance learning techniques, about 250,000 untrained primary and secondary teachers will be exposed to the new curriculum and methods of teaching, at a low recurrent cost and in a very short period of time;
2. The equipment installed, materials produced and the technology introduced under the school broadcasting programme will be optimally utilized;
3. Quality teaching in the schools will be promoted through cassettes supplemented by correspondence materials;
4. Eventually, distance education may provide a second chance for unsuccessful high school graduates; and
5. Life-oriented education will be organized using radio and television to provide the public with information about health, hygiene, sanitation and family planning.

Open university. The Government is now considering organizing an open university to meet the increasing demand for higher education. As a first step, the decision has already been taken to start courses leading to the B.Ed. degree in 1985. Bangladesh's single language and the wide coverage of the radio and television network make the country well-suited to such a project.

China

Primary and secondary. China's educational system is divided in two: conventional education and adult education. At present distance education is little used in conventional primary and secondary education. As part of the drive for China's modernization, however, conventional schools are being encouraged to set up audio-visual education centres. With guidance from the Ministry of Education, the National Agriculture Broadcasting School may soon be able to offer specialized courses at secondary level for China's vast rural population.

Tertiary. Distance education at the tertiary level and for adults is more developed. Beginning in the early 1960s, and in spite of a break during the Cultural Revolution, it has grown rapidly to fill the urgent need of the national economy for trained personnel. At present there are 29 branch schools and over 16,800 work unit classes. These form the core of China's distance education.

Distance education is done in two ways: through correspondence courses offered by correspondence departments of conventional universities or independent correspondence colleges; and through multi-media courses (radio, television, correspondence, audio-visual cassettes, slides and films) offered by the Central Radio and Television University (CRTVU). This is under the joint sponsorship of the Education Ministry and the Ministry of Radio and Television. Its courses are available all over the country. At the same time, conventional universities are being encouraged to set up more correspondence schools.

Training distance education personnel. In the past few years, distance education institutions have organized various training activities to teach tape-recording, video-recording, film projecting, equipment maintenance and programme editing. The CRTVU also convenes several national conferences every year to discuss teaching objectives, teaching plans, techniques of student registration, examination rules and graduation requirements. Television university teachers are trained at two levels: national and provincial. The CRTVU does national teacher training. The Central Audio-visual Centre has held 22 workshops, which are held both at the national and regional level.

All the above-mentioned training activities have played an important role in promoting distance education in China; yet experiences in this field have not yet been well-evaluated.

India

Primary and secondary. India made an early start in the use of radio in the schools – in the early 1950s, radio was already being used to supplement the regular curriculum. In this polyglot nation, language broadcasts have been given special emphasis. The use of television started in 1962 in New Delhi. The telecasts support classroom teaching in selected subjects.

In 1975-1976 India launched the Satellite Instructional Television Experiment (SITE). Of the two and one-half hours set aside for education every day, the morning telecasts were used for primary education. The lessons broadcast were both self-contained and in series. They were motivational and not strictly syllabus oriented. Only one set of programmes was broadcast for all viewers in the 6-11 age range.

At the secondary level distance education started formally in 1965. The Boards of Secondary Education, however, have had a long tradition of allowing p ivate candidates to sit their examinations. At present there are at least four Boards of Secondary Education offering correspondence courses. Printed materials remain the main form of instruction in these courses. More recent experiments in distance education at the secondary level will be covered below under 'non-formal' education.

Tertiary. Distance education at the tertiary level started with the introduction of correspondence courses at Delhi University in 1962. The courses were largely a response to the increasing number of students seeking admission to universities and colleges. Other universities quickly followed suit, and today about 25 universities offer correspondence courses both at graduate and post-graduate levels. Distance teaching is still done primarily through printed material, although some institutions, such as the Institute of Correspondence in Patiala and Chandigarh, do use radio broadcasts and other media. There are also personal contact programmes to supplement correspondence education.

Open university. The first open university in India was officially established by the state government of Andhra Pradesh in 1982. For the first year of instruction, 1983-1984, the University offered courses leading to the B.A., B.Com. and B.Sc. degrees. No formal educational qualifications are prescribed – anyone can enrol for an undergraduate course after passing the Entrance Test administered by the University. The only exception is made in the case of the B.Sc. course, for which some science background is required.

The main characteristic of the course system is its flexibility with regard to choice of optional subjects. Students wishing to go on for higher education, however, are under certain restrictions in their choice.

Courses are planned by expert committees consisting of a subject editor, a few course writers, a language editor and a co-ordinator. The co-ordinator is a full-time employee of the University whereas the course writers are usually outside experts.

In addition to printed material, lessons are planned for radio and video. All India Radio provides broadcast time for lessons. Altogether 28 Study Centres have been established in the state. These are located in existing colleges and are open on certain evenings, as well as on Sundays. As a heavy emphasis is being placed on video lessons, video equipment is available at the centres, along with audio cassettes.

The Study Centres provide face-to-face interaction with counsellors, who guide the students and explain the programmes broadcast or shown on the video. Intensive coaching in different subjects during summer schools held in April and May is also planned. Throughout the year students may take advantage of seminars and ***ad hoc*** lectures by teachers from outside the University.

Non-formal education. India has launched a massive non-formal education scheme to help students whose income-generating activities interfere with their education. At the primary level, a project named Comprehensive Access to Primary Education (CAPE) has been developed, which seeks to non-formalize teaching in terms of content and methodology. An Open School has also been started for learners at the secondary level. Various distance learning techniques are being experimented with in both of these programmes.

Both radio and television have been tested for the instruction of adult learners. The SITE project made available evening programmes for adult education and community development. Rural radio forums to teach agriculture, health, literacy, education and other aspects of social development were established on a pilot basis in the 1950s, but have not been widely expanded.

Teacher education. Four regional colleges of education have been conducting summer school-cum-correspondence courses for in-service teachers since 1966. Working secondary and primary school teachers who have not received teacher training are able to earn their Bachelor of Education degree through a combination of correspondence instruction, two-month summer sessions of intensive instruction on campus, and practice teaching. Immediately after completing the second summer session, candidates sit for the B.Ed. examination.

For the correspondence section of the course, each trainee is put under a guide. The guides provide advice on the study of various syllabus topics, suggest collateral reading and correct the response sheets submitted by the trainees. Each candidate is also expected to complete a number of field assignments. These include: action research relating to classroom problems, preparation of objective tests and a survey of any aspect of a school or community.

Indonesia

As a result of Indonesia's geography, transportation and communication problems slow down the development of education. There are many school-age children who still cannot attend school; there is a severe shortage of trained teachers. Distance education offers ways to overcome these problems that cannot be met using traditional approaches.

Primary. Pamong (Pendidikan Anak Oleh Masyarakat, Orangtua dan Guru, or Instructional Management by Parents, Community and Teachers) schools have been developed in Indonesia to provide primary education in an informal way for those who cannot go to ordinary schools regularly. The delivery systems are therefore created mainly for primary school drop-outs, or school-age children in sparsely populated areas where there are insufficient schools and teachers. Pamong self-instructional materials were used at the national level beginning in 1984.

The use of printed self-instructional materials in the Pamong system makes the learning process flexible in terms of time and place of learning. There are four different models within the Pamong system, described below.

1. The Community Learning Centre model is a total modification of the regular primary school. It uses self-instructional materials, individual/group learning, and peer tutors. The teacher is assigned the role of manager of instruction. The Pamong school functions as a 'mother school' for Learning Posts, which are school extensions in private homes.

2. The Small School model is one applied in sparsely populated areas. In this case there are usually three teachers in charge of up to 75 students, distributed unevenly in six classes. While the teacher works with the lower classes, the grade IV, V or VI students are

assigned self-instructional materials – Pamong modules – as individuals or in groups.

3. The Primary School model differs from the Community Learning Centre in that the formal school is not modified into a Pamong school. It remains a conventional school, but at the same time functions as the 'mother school' for several Learning Posts.

4. The Kejar-Patjar model, or the Learning Group-Learning Post model, is an integrated non-formal and formal system. It provides basic literacy and numeracy skills, combined with functional learning geared towards rural life. After finishing 20 learning packages, which normally, takes one or two years, the students may take a primary school equivalency exam. A diploma allows them to go on to secondary school.

Secondary. The Open Junior High School provides instruction through programmed printed materials, audio cassettes, slides and radio. Each Open Junior High is attached to a regular junior high school, which becomes the base school. The head of the Open Junior High is the head of the base school.

The curriculum of the Open Junior High is the same as the curriculum of the regular junior high school. The students study in places called Centres of Learning Activities, where they are supervised by a tutor. Each tutor has approximately 5 to 20 students. He does not teach in the classroom, but facilitates learning events by organizing learning groups, motivating the students, preparing modules, radio receivers, cassette players and slide projectors as needed. Once a week the students come to the base school for face-to-face instruction with teachers at the regular school.

Open university. As the current university system is no longer able to meet the increasing demand for higher education, an open university is now being developed. Its official opening was due in late 1984. By the end of 1988, it is planned that some 150,000 students will be accommodated by the new system. Courses of study will include a programme to upgrade university teachers and a diploma programme for secondary school teachers. The third programme will be for post-graduate studies in Public Administration; Business Administration; Economics and Development Studies; and Applied Statistics. Eventually the university will have five faculties: Teacher Training and Educational Sciences, Social and Political Sciences, Economics, Mathematics and Science, and Agriculture.

The teaching methods adopted by the Open University will allow students to increase their capability for self-study as well as group study. In line with the credit system, a student will be required to take a number of module-packages. Tutors and assistants will be provided to assist students individually or in groups.

Instruction will be managed and administered by regional offices affiliated with local universities. These offices will register students, distribute learning materials, administer tests, train counsellors and assistants, and provide assistance to the sub-branches – the nearest resource centre to the students. Methods of teaching will include the use of printed materials, face-to-face interaction with tutors (directly or indirectly via the satellite communications system), radio and television programmes, and laboratory and field work.

At the central office in Jakarta, the staff will develop learning packages using a variety of media, and organize guidance and counselling services as well.

Teacher education. To overcome Indonesia's shortage of teachers, the government has had to start a crash programme to recruit teachers without qualifications. In-service training for teachers is therefore a must. The principal device used for in-service education is radio, as it fits the country's current stage of development. Radio is inexpensive and educationally effective; and it has already become an accepted part of the nation's culture.

Printed materials are, of course, used to supplement the radio instruction.

The Educational Radio Broadcasting System is run by the Centre of Technology and Communication of Education and Culture. This Centre is responsible for planning, facilitating, and distributing programmes. In 1971 the training of personnel began, along with research on audience, hardware and management. Then between 1974 and 1976 the project went into its experimental stage, with the development of curriculum, scripts, tapes and test broadcasting. In 1977 the dissemination of these materials began, and since then efforts have been made to implement in-service teacher training on a wider basis. The supervision of teachers using these programmes is the responsibility of headmasters and supervisors. It can be difficult to supervise teachers in remote areas, however.

Malaysia

Primary and secondary. Distance education has existed for some time in Malaysia, in the form of correspondence courses run by private enterprises. In the government education service, though, distance teaching ***per se*** is not deemed necessary at the primary and secondary levels. Around 98 per cent of the population enters primary schools, and the drop-out rate is fairly low at 10 per cent.

In these circumstances educational television and radio become supportive services to formal teaching.

Distance education is basically the preserve of the Educational Media Service Division (EMS) in the Ministry of Education. When it was established in 1972, the Division incorporated an educational radio section and an audio-visual aids section with a newly formed educational television section.

The objectives of the EMS include the following:

1. To strengthen the national education system by reducing imbalances and improving educational opportunities in rural schools which are handicapped for lack of qualified staff and equipment;
2. To improve the quality of education by demonstrating good teaching methods;
3. To improve survival rates at all levels by motivating pupils through interesting programme materials using audio-visual techniques;
4. To assist in teaching subject areas where trained teachers are in short supply, e.g., science, mathematics, technical and vocational subjects; and
5. To promote civic consciousness at both the primary and the secondary level and the use of Bahasa Malaysia.

The EMS is responsible for the preparation, production and dissemination of teaching materials and programmes. The educational radio and TV programmes are meant to complement and supplement the teachers' work in the classroom. When the educational TV section was established it could produce only six series of programmes. (There are 19 programmes in a series). Since then new series have been added each year.

Now there are 30 series, covering Bahasa Malaysia, English language, mathematics, history, civics and current affairs for primary schools; science, mathematics, commerce and civics for lower secondary schools; and physics, biology and chemistry for Form VI students. The TV programmes are telecast by Radio-Television Malaysia from 7.50 a.m. to 1.00 p.m., with repeat telecasts from 1.35 p.m. to 5.15 p.m. on Channel 1 on Mondays to Tuesdays and on Channel 2 on Wednesdays to Thursdays.

Educational radio programmes are broadcast in three languages using three networks. There are 77 series of programmes broadcast each week from 9.00 a.m. to 12.30 p.m., with repeats in the afternoon.

The programmes produced for Standard I up to Form VI cover languages (Bahasa Malaysia, English, Chinese, Tamil), Islamic religious knowledge, songs and music, geography, history, civics, economics, general paper, and Malay literature. The educational radio units in Sabah and Sarawak produce and broadcast their own programmes.

The EMS has also purchased for distribution to primary and secondary schools 5,500 TV sets and 2,500 generators in Peninsular Malaysia; 900 TV sets with 712 generators for Sabah; as well as 1,225 TV sets and 900 generators for Sarawak. Schools have also been supplied with radio cassette recorders. The telecast/broadcast timetables, subject titles and teachers' notes are handled by a printing unit. They are sent to schools before the beginning of the school year in January.

Tertiary. Government-sponsored distance education at the university level is at present limited to the off-campus academic programme of the University of Science in Penang. The programme was started in 1971 in the School of Humanities and the School of Comparative Social Sciences. The School of Physics and Mathematics joined the Programme in 1973, followed by the School of Chemical Sciences and School of Biological Sciences in 1974. The Language Unit also offers courses in Bahasa Malaysia and Linguistics.

The courses that are offered are of the same standard as those for full-time students, although the teaching methods are different. Currently there are 140 courses offered, taught by 151 lecturers. On completing the Programme successfully, students receive the Bachelor of Arts, Bachelor of Social Sciences or the Bachelor of Science degree.

In order to graduate, students must accumulate a total of 120 units. About two-thirds of these units have to be earned off-campus within a minimum period of four years and a maximum of eight years. Students must pass 40 per cent of the total examinations sat. If they fail they are put on probation. To complete the programme, they must spend their last year doing full-time study on campus.

From an initial intake of 100 students, the Off-campus Programme has grown to about 900 students, which is 20 per cent of the total enrolment of the University. The success rate of off-campus students is high, as admission requirements are the same as for on-campus students. Of the first group of students enrolled in 1976, 65 per cent completed their courses successfully.

Off-campus instruction is done mainly through printed materials, which are sent out in four batches during the year. For certain courses audio cassettes are provided. Slides are also available at regional learning centres. Only courses in the humanities and social sciences use radio – broadcasts are limited to 30 minutes weekly.

At the regional centres first year students attend weekend tutorials conducted by part-time lecturers. An assessment of assignments completed for tutorials is weighted at between 10 and 30 per cent of the student's performance for the year. A three-week compulsory course, normally held in November, gives students and teachers an opportunity to meet. During this time students' academic problems are dealt with and their progress appraised.

A library service is also organized for the off-campus students. Books for the humanities and social sciences are sent to eleven regional libraries, located in local public libraries. In addition, students can make use of the postal loan service of the University Library.

Non-formal education. The Ministry of Information in Malaysia produces TV and radio programmes of general interest on topics such as agriculture, housecraft, and Islamic knowledge.

Teacher education. Between 1958 and 1965 Malaysia organized correspondence training for primary school teachers. This programme has ended, however, because there are now enough teacher training colleges and upgrading is done during school vacations.

Training of distance education personnel. Training for teachers involved in media teaching takes the following forms:

1. Qualified teachers are sent for in-service training for one year at the Specialist Teacher Training College. Their course is devoted to in-depth study of library management, media technology and related subjects.
2. Graduates teaching at the secondary level can take a one year in-service course at the University of Science in Penang. Graduates of this course receive a Diploma in Educational Technology.
3. In four Malaysian states, Educational Resource Centres have been created to encourage interaction among teachers and suggestions for the improvement of education. Teachers are also exposed to the management of technology.

Finally, Educational TV staff are trying to make programmes more interesting. Trainees have been sent to study animation in Japan and the United Kingdom; others are trained locally at the National Broadcasting Training Centre.

Maldives

There is not yet an established system of distance learning in the Maldives, but some distance learning activities do exist for formal as well as non-formal education. And given the fact that the population of about 172,000 is scattered among 200 islands, there are plans to put distance education on a firmer footing in the future. At the moment a series of radio programmes on the teaching of English for grades I and II is broadcast every school day. These programmes are intended for pupils on remote islands who do not have access to proper instruction. Radio 'Haveer', a daily programme, instructs the general public on fisheries, agriculture, health, history and tradition. Programmes are also broadcast on environmental studies, and to upgrade in-service teachers.

Some programmes that may be developed in the future are the following:

1. Support for in-service teachers, who need upgrading in content knowledge and pedagogy;
2. Raising the vocational standard of government employees; and

3. Using individual learning packages in areas such as English language teaching and management.

If a distance learning system can be established using two-way radio, the Atoll Education Centres will play a major role in its operation. These centres are headed by headmasters who serve both as principals and as the key educators. Therefore, they will need training in radio conferencing in the future. The supporting staff of script writers, broadcasters and technicians will also need relevant training.

Nepal

Teacher education. Nepal, a mountainous country where one-third of the districts are officially declared remote areas, is an obvious place for the development of distance education. Moreover, a boom in school enrolments since the 1950s means that the number of teachers has had to be rapidly increased. There are now over 32,000 primary school teachers, of whom almost 21,000 are untrained. Clearly, one of the limiting factors in improving the performance of existing schools and in further expanding educational facilities is the shortage of trained primary school teachers.

The Government of Nepal, recognizing the potential of teacher training by radio, began working with USAID in 1972 to develop a plan. In 1978, then, a project known as Radio Education Teacher Training Programme (RETTP) was launched with technical assistance from Southern Illinois University in the United States. The project has been a joint venture of the Ministry of Education and Culture, the Radio Nepal section of the Ministry of Communication and the Institute of Education.

The main objective of the RETTP was to develop and test a training programme for untrained, rural primary school teachers, which would use the medium of radio reinforced by written self-instruction materials and periodic workshops. The programme had to meet basic certificate standards.

A supply of over 25,000 radios was made available – each teacher enrolled is loaned a nine volt radio set along with a supply of batteries for the year of training.

The curriculum stresses the skills and attitudes required to teach pupils in the first three primary grades. In addition it covers topics which enable the rural teacher to function more effectively as an innovator and change agent in her community.

The basic pattern of each one-hour broadcast consists of two 20 minute sections covering a given content area, separated by a 20 minute session of a more informal nature including music, and questions and answers based on letters received. Non-formal sessions for adult listeners in health, agriculture and current events are also broadcast. Each enrolled listener is expected to read a related lesson from the self-instruction book in addition to listening to the hour-long programme. The entire course requires about two hours of work per day, five days a week four approximately ten months.

Over 1,000 teachers were enrolled for the first full-year programme in 1981-1982. By the end of that year all radio scripts had been recorded and all printed materials had been delivered to the 69 districts involved. The current plan is to repeat the programme each year until approximately 6,000 untrained primary school teachers have been trained. Future programmes will be developed for lower secondary teachers (grades VI and VII).

Teachers who have participated in the RETTP feel that they are teaching better and with greater confidence as a result of the programme.

With RETTP and other distance education programmes under production in Nepal, there is a need to develop training programmes for module and script writers. Training is also needed for field supervisors so that distance education can be optimally utilized.

New Zealand

Distance education is well-established in New Zealand and is fully integrated with the formal system. The rural farm economy is the key to the country's prosperity – this may account for the national concern that children and others in remote places not be educationally disadvantaged. Today New Zealand possesses a comprehensive set of distance learning institutions which together constitute an entire, counterpart education system.

Primary and secondary. For school children at all levels, the New Zealand Correspondence School (NZCS) has provided education since 1922. Originally the School catered only to children in remote areas or those who were unable to attend school because of a physical handicap. At present a large portion of the 9,000 school-age students enrolled are in ordinary schools, but taking special subjects

from NZCS, for which their schools lack teachers. Approximately 11,000 adults who are resuming studies after leaving school early are also enrolled.

The staff are trained teachers recruited from the schools, including a few whom deafness or other disabilities prevent from teaching face-to-face. They are expected to provide personal tuition for children and to help write and renew teaching materials. Although written materials are the main teaching resource, cassette tapes and regular radio broadcasts supplement them. Radio programmes are transmitted by national and local stations for 20 minutes every weekday morning during the school year. As radio reception is sometimes poor in isolated areas and since some students reside overseas, broadcasts are not a compulsory part of any course, but are seen as a valuable source of motivation. Some television programmes have recently been produced and video cassettes are now being used. Although regional support services are limited, telephone contact is used whenever necessary. Textbooks are issued free to full-time school-age children and library books can also be supplied.

Tertiary. University distance education is provided by Massey University's Centre for University Extramural Studies (CUES). Massey, with around 5,000 internal students, has a wide range of degrees and diplomas, some but not all of which are offered extramurally. The main method of distance instruction is correspondence, including audio-cassettes, but each course requires a short on-campus or off-campus contact period when students meet academic staff. Radio and television are not used, mainly because many courses have too few students to warrant airtime. Regional support, especially in Education courses, is provided by off-campus tutors who are members of the Faculty of Education. Other regional tutors are rare, but the Students' Association does provide advice and feedback and organizes study groups.

In the early days of extramural teaching, most of the students were teachers. As the range of courses has expanded, however, so has the clientele; and so has the number of students whose occupation makes internal study difficult. CUES now has many students engaged in mid-career studies in nursing, business, social work, food technology and various other fields. There are also increasing numbers of women seeking a second chance for study that they may not have been able to pursue earlier in life.

Distance education in countries of the region

Admission to university in New Zealand is normally achieved through school recommendation or by public examination. After the age of 21, however, candidates can apply to the CUES for Provisional or Special Admission, citing some alternative study or experience in support of their cases. At Massey University, candidates over 25 may now be admitted on the basis of maturity alone. Today there are many distance students scattered through the South-west Pacific and farther afield.

Non-formal education. Alongside the distance education institutions of the formal system are several non-formal programmes. The Continuing Education Unit of Radio New Zealand broadcasts programmes in short series on matters of public interest; the Workers Educational Association – Trade Union Postal Education Service provides courses in basic educational skills for early school leavers, as well as courses on labour education. The Extension Department of Otago University operates a provincial outreach programme of studies using telephone tutorials.

Technical education. New Zealand's largest distance education institution is the Technical Correspondence Institute (NZTCI), with a current enrolment of around 35,000. In addition to New Zealand students, it is open to overseas students in countries where the New Zealand Foreign Aid Programme applies and to private overseas students. Approximately one-quarter of the students are studying at craft level (mainly apprentices) for technician courses, one-quarter are studying for professional qualifications and the remainder for various qualifications at sub-professional level. Nearly all courses are aimed at national qualifications issued by such bodies as the Authority for Advanced Vocational Awards, the Institution of Engineers, the Society of Accountants, the Law Society and others.

Printed material is the main method of instruction. Each subject is covered by eight to 14 printed assignments which are complete expositions in themselves. Textbooks are required only for supplementary reading as such texts tend to become outdated quickly. The whole system is based on individual instruction at the pace of each student. The average student studies two to four subjects at a time.

Printed assignments are supplemented by other media. Students of many courses are required to complete laboratory courses or block courses in practical work each year. Most of this is

handled by directing the student to a practical course at one of the regional class-contact institutes, or in the case of technician or professional students, at the Central Institute of Technology.

All students who are currently employed are, of course, doing practical work daily in their employment. Some of them are required to complete assignment projects at their workplace (e.g. jewellery apprentices), while in other cases large firms themselves supplement correspondence teaching.

Little use has been made of radio or TV support programmes as the number of students involved in each specialist subject is relatively small. Video cassette instructional tapes have been produced in the Institute and increased use of such tapes is planned.

Teacher education. The Advanced Studies for Teachers Unit (ASTU) provides in-service correspondence courses for some untrained teachers seeking initial qualification, as well as for trained teachers working towards the New Zealand Department of Education Diploma in Teaching. The ASTU is now located within a teachers college near Massey University. It, too, relies on correspondence material (including audio cassettes) prepared by external contract writers in accordance with set guidelines. Support services for students are available from local teachers colleges if students are close enough.

Pakistan

Pakistan, as mentioned in the introduction, has acute problems in delivering education to its growing population. The inability of the formal system to provide the necessary skills to the masses of people is now being acknowledged by the policy makers and planners. This situation has, therefore, prompted serious experimentation with other approaches. Distance education through correspondence, radio, TV, tutorial sessions and other techniques, has been considered as a possible alternative.

Open university. Pakistan's first substantial effort in distance education has been at the tertiary level. This culminated in the founding of Allama Iqbal Open University (AIOU) 11 years ago. The decision to start an open university was prompted by the need for a cost-effective way to provide education to large numbers of adults. The AIOU multi-media system is designed to reduce social inequalities in education, to make education available to those who have not

been able to take advantage of formal institutions, and to help adults integrate their occupational and educational activities. The target groups of the University include in-service personnel (mainly teachers), housewives and other working adults. Current enrolment is approximately 65,000 and admission is totally open.

AIOU uses a three-tiered system with a central headquarters, ten regional study centres, and 150 local study centres. The regional centres provide technical and library services, as well as laboratory, workshop and other training facilities which cannot be provided in each local study centre. Each regional centre supervises the tutors at the local level.

The local study centres are staffed by part-time employees. During a typical semester, about 1,000 part-time tutors conduct tutorial/practical sessions covering the requirements of the 65 courses offered by the University. At present, one tutor per study centre is assigned to each course of study. The tutors usually come from the institution in which the study centre is located. Approximately 68 per cent of the students make use of study centres. The centres are now being equipped with radio and television sets, as well as audio cassettes. All the relevant course materials may also be found there.

The University, on average, produces, develops and records about 300 radio programmes and 75 television programmes each semester. These are prepared by course co-ordinators in collaboration with technical staff. The Pakistan Broadcasting Corporation and the Pakistan Television Corporation offer their services to the University at subsidized rates.

Teacher education. Allama Iqbal Open University offers a wide range of courses in education. These include the following:

1. Primary Teachers' Orientation Course;
2. Primary Teachers' Certificate;
3. Certificate of Teaching;
4. M.A. (Educational Planning and Management);
5. Post-graduate Diploma in English Language Teaching; and
6. Intermediate and B.A. level courses in Education.

Out of the spectrum listed above, the Primary Teachers' Orientation Course is the largest programme. By 1981 about 65,000

primary teachers had been oriented this way. The Primary Teachers' Certificate is designed for the training of in-service matriculate teachers, while the Certificate of Teaching is a new course offered for middle-level, untrained teachers.

The M.A. in Educational Planning and Management is the most advanced programme offered by the University, and comprises eight courses and a research project. Around 500 key personnel including headmasters, district education officers, supervisors of primary schools and teacher educators of various levels, are enrolled in this programme. AIOU also offers intermediate and B.A. level courses in Education, which provide the student the basic theoretical knowledge about the subject.

Training of distance education personnel. Allama Iqbal has not yet developed a comprehensive training programme for personnel in distance education. The University does, however, follow certain techniques to orientate these people to their work. In addition to induction sessions and briefings, new personnel may be placed in internship with a senior counterpart. Tutors' guides are prepared by the course co-ordinator, which cover methods of evaluating students and ways to maintain uniformity of standards. AIOU staff are also sometimes sent abroad for training, mainly in the United Kingdom.

Papua New Guinea

Secondary. The College of External Studies (COES) has been providing secondary level education on a correspondence basis since 1956 in Papua New Guinea. Originally it was conceived as a means by which working public servants with little education could upgrade their qualifications. At the beginning the College did not enjoy high status, since correspondence education was considered a poor substitute for classroom teaching. Until 1964 the College used courses prepared in Queensland, Australia.

Although the College had existed in one form or another for over 27 years, its functions were not properly defined until the 1980s. In 1981 the Committee of Standards stated that the 'purpose of the COES is to provide a continuing system of education, alternative to that of the formal school system, for those who, for one reason or another, have been unable to pursue the latter'. The College Handbook of 1982 states the College's aim this way: 'to provide an education for those people who are unable to continue their

studies through the formal system. To provide a means whereby without leaving the work-force, men and women can study and upgrade their qualifications'.

At present the College offers courses to more than 9,000 students. These cover grades VII to X in the following subjects: English, mathematics, social science, commerce, science, environmental studies, and neighbouring countries. As in the formal school system, the final statement of achievement is the School Certificate.

Results are based 50 per cent on teachers' assessments, summed up over four years, and 50 per cent on the National Examination in the four core subjects: English, mathematics, science, and secondary science.

The COES now has 23 professional staff members, whose purpose is to produce course materials. The college also has 48 ancillary staff who provide various support services. The use of media other than print is as yet little developed, but a weekly programme in English is broadcast. Audio cassettes are coming into use, and it is hoped that more work can be done on this programme.

In 1983 the College took an important step by setting up 18 provincial centres. Another is planned for the country's nineteenth and final province. The new centres have created a need for training however, of the newly appointed centre co-ordinators. In addition to the provincial centres, there are approximately 70 registered study centres throughout the country, run by qualified secondary teachers.

Research and evaluation have not yet been organized in a co-ordinated way. These functions have been left to the subject departments and the Deputy for curriculum.

Philippines

The Philippines uses distance learning to deliver education to out-of-school youth and adults. Among the steps taken to encourage distance learners are the relaxation of entry requirements, attendance or residence conditions for courses, and the adoption of a flexible approach towards pace of study and examination procedures. Distance education is used at three levels: secondary, teacher education and non- formal education.

Secondary. The main objective at the secondary level is to help elementary school graduates who have had no opportunity to enter

high school, to return to the mainstream of formal education. This programme is called the Distance Learning Delivery System and was launched in 1983. It began with 13 pilot centres in the 13 educational regions of the country. The initial stage consisted of the production of materials, training of tutors and conferences on implementation. Nine modules have been written, tested, and finally produced in large quantities. The system will be implemented on a small scale at first, while additional staff are being trained.

Non-formal education. Distance education is used in the non-formal sector by the Philippines University of Life. The University conducts programmes for adults and out-of-school youth on food production, energy conservation, and entrepreneurship. Instruction is carried out through modules developed by subject experts.

Another project which falls under non-formal education is the 'Self-Learning Integrated Modules for Mothers' (SLIMM). The SLIMM project was developed to help mothers realize the potential of their pre-schoolers and to prepare them for grade I. So far field testing of SLIMM among a sample of mothers from four villages shows that those who use the modules are as effective in teaching their pre-schoolers as mothers who are trained teachers.

Teacher education. The teacher education aspect of distance learning is being implemented by the Baguio Vacation National School, an in-service training institution run by the Ministry of Education, Culture and Sports. The programme, called Continuing Education of Teachers (CET) has been developed by the Educational Communications Office of the Educational Projects Implementation Task Force.

Several subjects, all part of the graduate school curriculum, are covered by CET. These include Current Educational Trends, Teaching English as a Second Language, Pilipino and the Teaching of Social Studies. Audio cassettes, printed materials and forums conducted by the course facilitators are the methods of instruction used.

On the southern island of Mindanao, there is another programme for teacher education known as the University of Mindanao on the Air (UM Air). The University graduate school launched this programme to enable teachers in remote areas to obtain a Master's Degree at minimum expense, UM Air utilizes the radio stations owned and operated by the university broadcasting network. Stations are located in Davao City and in Cotabato City. Packaged library

materials are distributed to these centres. Students enrolled in the course must spend an orientation day on the main university campus to receive course materials and meet the tutors. Materials distributed on campus include a broadcast schedule, the course syllabus, modules, problems to be completed and guide questions to be completed in student workbooks. Following this session, students must return to the campus for mid-term and final examinations. To maintain academic standards, the distance Master's programme uses the same syllabus and examinations as are used for on-campus students.

Training distance education personnel. Workshops are held to acquaint curriculum writers with the philosophy of distance education. Writers are then introduced to the guidelines which ensure that materials produced are consistent with the curriculum of the formal system.

The training of managers for distance education emphasizes practical matters such as enrolment procedures, collection of fees, storage and retrieval of materials, record keeping and accountability rules. Tutors, on the other hand, are trained in the more substantive aspects of the system: screening applicants, teaching, evaluation techniques, use of supplementary materials, and how to interact with students with learning problems. In most cases training is done at the national level.

Republic of Korea

Three important distance education systems exist in Korea: radio broadcasting for elementary schools, radio and correspondence courses at the high school level, and a tertiary level air and correspondence university.

Primary. In 1972 a plan for educational broadcasting was developed as part of a reform in the elementary and middle schools. The government established a broadcasting system that included radio and television, within the Korean Educational Development Institure. Radio broadcasts for elementary schools began in 1974.

The radio programmes are produced for all six grades of primary school, with the programme content divided among instructional and supplementary material, general education, teachers' and parents' programmes and educational news. Programmes range from 15 to 30 minutes in length and are broadcast over a period of three hours each day. Approximately 3,000 programmes are produced

annually. The Korean Educational Development Institute produces radio programmes, programme guides and teachers' guides. The programme guides and teachers' guides are sent to all elementary schools located within the signal receiving zone.

Radio broadcasting is used more in rural areas than in cities and towns. Some remote areas are, in fact, heavily dependent on broadcasts. The way the programmes are used varies from school to school. Some use taped programmes; others use them as they are broadcast, while others use their amplifier system so that an entire grade may listen to a programme at the same time. Teachers report that radio instruction helps promote student ability in self-directed learning, classroom discussion, and listening and note-taking. Radio can also make a strong contribution to creative writing and music instruction.

Secondary. An Air and Correspondence High School (ACHS) was founded in 1974 to serve the youth population who, for economic reasons, cannot attend formal school. Now a system of 48 high schools, the ACHS has 35,000 students enrolled. About 75 per cent of ACHS students work, and their economic status is low. Instruction is largely through self-learning and radio. The students receive textbooks, a guidebook for radio instruction and monthly self-learning modules.

Each Air and Correspondence High School is annexed to a regular high school to make use of existing facilities and personnel at low cost. The students attend their nearby school every other Sunday; regular high school teachers provide instruction for extra pay.

Tertiary. The Korean Air and Correspondence University (KCU) was founded in 1972 as a two-year junior college. Its founding was partly the result of political expediency: large numbers of students were being turned away from university, due to failure in the highly competitive entrance examination. The KCU, thus, came into being as a way of pacifying these disgruntled students. Given its background, the KCU still suffers from the stigma of being second-best, and has yet to be recognized as a full-fledged university. It is supervised by a section of the Bureau of Non-formal and Vocational Education. But instead of being 'an institution for the drop-outs from the university entrance examination', the KCU's founders would prefer to define it as 'an educational institution for adults who

are deprived by financial and other reasons of the opportunity to receive higher education'. As part of a system of life-long education, the KCU is designed, in fact, to improve national educational standards and to produce trained manpower for the development of the country.

As of March 1983, KCU had ten departments offering five-year university courses and one junior college course (Early Childhood Education). The student population now amounts to approximately 120,000. Candidates for admission are selected by a computer lottery from among the graduates of high schools and those who are recognized as having earned equivalent qualifications. The candidates' high school academic records are taken into account, as are the results of a qualifying examination. During the past ten years only 30.74 per cent of candidates have been admitted. During the same period, 33,800 students successfully completed the prescribed course of study, or 29.9 per cent of the total admitted. The high drop-out rate may reflect the high standard of teaching that has been maintained. Five per cent of total admissions are reserved for students seconded by government agencies. So far only elementary school teachers have taken advantage of this opportunity.

The curriculum is divided into general education and specialization. The minimum requirement for graduation is set at 140 credit points. A B.A. student is expected to finish in five years. One credit point at KCU represents individual study of textbooks, listening in to four radio lectures, plus 16 days' attendance at lectures each year. In addition, students are expected to present three term papers per semester, to make use of lectures printed in the KCU newspapers, and to utilize study guides compiled by the teaching staff. Television lectures as yet are not offered, as no telecast time has been made available. The University is, however, beginning to produce its own video cassettes.

One major problem the KCU now faces is the sudden and rapid increase in admission quotas. This threatens the quality of education and has swamped the 50 member faculty with papers to mark. Use of computers alone will not be enough to evaluate each student's achievements. Supporting colleges in the provinces which take KCU students during summer and winter vacations are also finding the charge beyond their capabilities.

One possible solution may be to establish separate facilities of correspondence education in co-operating colleges and universities, and to give them the task of teaching and supervising the students. The KCU could then concentrate on the production and distribution of teaching materials, production and transmission of radio and TV programmes, and production of other educational aids.

Sri Lanka

Primary and secondary. Sri Lanka's system of universal free education, compulsory up to grade X, means that there has been little need to use distance education at the school level. Some private organizations have offered correspondence courses to school leavers preparing for public examinations, but this has been without any government sanction or evaluation. In addition to the correspondence courses offered by the private sector, there is a programme of distance teaching directed primarily at the senior secondary level. This uses television to teach certain specialized subjects such as mathematics and science. Each lesson is 20 minutes long and is telecast in both Sinhala and Tamil languages between 9.45 and 11.30 a.m. Schools are supplied with colour television sets and guide books for teachers are sent well in advance of the programmes, so that students can be prepared for the lesson.

Radio broadcasts of lessons in social studies, science and English are produced by the Schools Service of the Sri Lanka Broadcasting Corporation. These transmissions are aimed particularly at O Level students. Programmes are broadcast on week days, both morning and afternoon, for 15 or 20 minutes each.

Open university. Sri Lanka's system of universal education yearly produces students with more and more schooling, as well as enhanced career expectations. But only two per cent of this number can enter university – the others must seek alternative vocational and technical training. It was to fill this need that the Open University was started in 1980. Initially, it concentrated on Diploma and Certificate courses in Mathematics, Science, Management Studies, Electronics and Telecommunication Technology and other specialities. There are now around 18,000 students enrolled. A number of new courses, in Food Science and Technology, Entrepreneaurship and languages, for example, are being formulated. Foundation courses are provided for students who do not have adequate knowledge to pursue tertiary level courses.

Instruction is via printed material and weekend and vacation contact sessions which use radio and television. Course duration varies from six months to three years. Lessons are oriented on the lines of the Open University in the United Kingdom.

Teacher education. The newest use of distance education in Sri Lanka is in teacher education. There has been heavy recruitment of new teachers with only O or A Level qualifications in recent years; thus, of the 140,000 working teachers in the school system, around 35,000 have no professional training.

The main objective of the distance programme is to provide training to the backlog of untrained teachers as quickly as possible. Several other objectives, however, are also envisaged. These are the training of teachers able to teach both mathematics and science at the secondary level; provision of recurrent in-service courses for teachers; implementation of courses for educational administrators and supervisory personnel; and the provision of supplementary educational material to the teachers. So far two courses have been launched: Elementary Education and the maths/science combined course. Several other courses are in preparation.

The programme is executed by the Distance Education Branch of the Ministry of Education. A Director of Education is in charge of the entire programme, which is being organized on a district basis, with a senior tutor and a number of field tutors appointed to each district. The role of the tutor is to motivate, counsel, guide and evaluate the work of the student teachers. Teachers Centres have been set up for support purposes in each district. By the end of 1985, 300 such centres should be set up. Their functions will be to:

1. Reinforce the self-learning activities of distance learners;
2. Adopt measures and develop programmes to foster in the teachers a sense of commitment to work; and
3. Enable teachers to experiment with techniques and skills in handling groups and to share professional expertise.

Study material covering an entire course in modular form is provided to the student teachers. Feedback is obtained through assignments submitted by the students. Study circles and contact sessions are organized at regular intervals. The delivery of modules to the student depends on his or her pace of progress; the distance education branch maintains progress charts for students. As

supplements to the modules students are supplied with audio and video cassettes.

Training distance education personnel. The personnel needed for distance education programmes have been identified and are being trained for specific functions. These include registration of students, production of courses, examination work, layout, editing, printing, distribution, tutoring and evaluation of assignments. Three special handbooks – on course writing, layout, production and editing, for tutors and correspondence teachers; and for administration – have been prepared and distributed. Distance education specialists funded by Swedish International Development Aid have collaborated in this work. Training workshops of 60 hours duration each have also been organized for these personnel. Special emphasis has been placed on training the course writers.

An island-wide programme for teachers using distance education was due to start in 1983. Special courses were to be offered in elementary education, secondary level maths and sciences and for university graduates earning the Diploma in Education. The total cost of the distance education project for 5,000 teachers was expected to come to US$1 million, most of which was coming from Swedish funds.

Thailand

Primary and secondary. Thailand has concentrated on developing educational radio as a supplement to school instruction, mainly at the primary level. Since 1958 the Ministry of Education has had radio programmes for schools, but until recently these broadcasts reached only a limited portion of the country. Although educational television was experimented with in the 1960s, most of the programmes that were developed have not survived. With World Bank advice and funding from the International Development Agency, in 1978-1979 the decision was made to develop a National Educational Radio Network (NERN) under the control of the Public Relations Department.

As part of this project, a Centre for Educational Technology (CET) was completed in 1982, whose main function is to produce radio programmes for schools. Its up-to-date studios and equipment are also available for production of educational broadcasts by other groups, however. The CET gets 25½ hours per week for its broad-

casts on the NERN, or 19.51 per cent of total network time. The Centre now has five studios, including one suitable for drama and another large enough to accommodate the Bangkok Symphony Orchestra. There are also facilities for producing movies, dark-rooms, cameras and a film library with projectors to loan to schools. A computer has been installed for record-keeping and evaluation.

At the primary level, broadcasts cover the whole range of subjects, while for secondary students broadcasts are limited to English language and educational guidance. With the small number of secondary schools in the country (only about 2,000), the use of radio is not considered cost-effective. Eventually these two subjects will be taught via taped cassettes.

Training materials for teachers using the radio broadcasts are sent to District Education Supervisors and to school clusters. In theory the clusters hold a meeting every month to discuss these materials, but there has been no survey to find out how many actually do so.

As the CET has been in operation only three years, there are still management problems to be sorted out involving procurement and store-keeping. The booking of studios has not worked according to plan – outside groups tend to book for longer times than they need. The training of producers has not posed too great a problem, however, as educational broadcasting by now has a fairly long history in Thailand. A broadcasting engineer from the United Kingdom was hired for a year to train technicians to use and repair the CET's sophisticated equipment.

With a target audience of eight million to serve, the CET has not yet begun to evaluate the effectiveness of its broadcasts. Information on the programmes available has still not filtered out to all the teachers who are potential users, although in general the reception has been positive.

Open university. Sukhothai Thammathirat, Thailand's open university, accepted its first students in 1980. Temporarily housed in five buildings scattered around Bangkok, the University headquarters opened in 1984. By the end of 1983 the University had admitted three batches of students – a total of around 200,000 covering every province in the country. Admission to the University is completely open, with no entrance examination.

The first three schools to offer courses were the School of Liberal Arts, the School of Educational Studies, and the School of Management Science. In 1982 the University increased its enrolment by admitting students in the Schools of Law, Health Science, Home Economics and Agricultural Studies and Co-operatives. By 1983 the University offered courses in the School of Political Science as well, bringing the total number of schools to nine. Approximately 90 per cent of the students are working adults; the remainder are recent graduates of secondary schools.

Printed self-instructional course materials accompanied by audio cassettes constitute the principal medium of instruction. These are supplemented by radio and television programmes. Equally important is the provision of a certain degree of personal contact in the form of tutorial sessions held at study centres in every province. Altogether, students are expected to study approximately 15 hours per week. Some 70 per cent of this time is spent on reading the printed texts, with the rest devoted to listening to weekly radio programmes and watching television programmes for each course. Students must also attend tutorials at the study centres.

When a student has earned the required number of credits for a degree, he must undergo an intensive professional enrichment programme designed to evaluate his potential for applying the knowledge he has gained.

Since the Open University provides home-based study and uses a variety of teaching media, the number of full-time staff required is smaller than that of other universities. The full-time staff now numbers 431, of whom 106 are permanent faculty. When the University has grown to its full capacity, it will have a full-time staff of from 500 to 600, one-third of whom will be teaching staff. The University has also invited 3,000 specialists from other universities and agencies to serve as course producers and to provide instruction at the tutorial sessions.

In addition to its degree programmes, the University has established two types of continuing education programmes – a certificate of achievement programme and joint programmes with other agencies. In the certificate of achievement programme, there are no limits on enrolment. Students study the same integrated courses and sit for the same exams as do regular students. If they pass the exam for a particular course, they receive a certificate of achievement. In

the joint programmes, the University co-operates with various governmental and private agencies in setting up programmes of personnel development. Joint programmes established so far include co-operative arrangements with the Police Department, the Department of Lands, the Ministry of Agriculture and Co-operatives, and the Bangkok Bank.

Non-formal education. Thailand's National Educational Radio Network reserves time for what could loosely be called non-formal educational broadcasts. These include seven hours per week for farmers, 20 hours for non-formal students and two hours and 20 minutes for health programmes aimed at the general public. A Radio Correspondence Programme (RCP) devoted mainly to adult education is produced on a regional basis. RCP broadcasts cover literacy, agriculture and special interests such as cooking.

Teacher education. Several projects have been launched to upgrade Thailand's untrained teachers. The Teachers Institute started a Correspondence Course for In-service Teachers in 1969. The programme enables unqualified teachers to receive either the Certificate in Education or the Secondary Grade Teacher Certificate. The subjects taught are Mathematics, Science, Social Studies, English, Thai and Pedagogy. Teachers may enrol for not more than three subjects in one term. A term lasts four months and lessons are mailed out once a month. Students must do exercises and send them back to the Institute for correction. As there is no possibility for face-to-face contact, students must mail any questions they may have to the staff at the Institute. The staff is composed of resource persons who are also responsible for producing correspondence materials.

The Teacher Training Department's Radio Correspondence Programme is also designed to upgrade the qualifications of teachers. It uses correspondence supplemented by radio. Cassettes are also available for course members who miss broadcasts. Study materials are mailed to the course members, who must in turn mail back assignments for evaluation. Radio transmissions via the NERN cover six subjects and are broadcast in 30-minute lessons all year round. By 1981 more than 50 per cent of students had passed the annual examinations.

Research in distance education. Like any other system, distance education needs constant evaluation and renewal. This is particularly

true of distance education as compared to other forms of education, as the direct teacher-pupil feedback which one finds in an ordinary classroom is lacking. Research has shown that the use of media in a fixed sequence causes boredom among learners. There is a challenge, then, to make the learning method more interesting and to minimize the monotony for learners who do not have human interaction to divert them.

In many instances where reduced instructional time is utilized, some supplements to instruction may be necessary. To identify these supplementary materials it is necessary to check the pace of learning and the quality of the outcome periodically. After an evaluation, remedial work or enrichment may be proposed.

There is a variety of research and evaluation techniques that may be used in addition to tests, rating scales and check lists. Some of these are:

1. Face-to-face dialogue between the curriculum developers on the one hand and the tutors and learners on the other;
2. Judgement by a panel of experts on the technical soundness of the material;
3. ***Teaching simulation.*** Teachers may simulate classes or use a small pilot class to find out whether new materials are well-sequenced, readable and in general teachable;
4. ***Use of the advocate and the adversary.*** A model may be adopted wherein one person, usually the proponent of an idea, plays the role of the advocate and a doubting educator the adversary. This method gives the implementors of a new system an idea of possible strengths and weaknesses; and
5. ***Goal-free observation.*** This method is useful for evaluating the impact of a programme in a particular community, where changes in life-style and attitudes can be observed.

Innovations

New communications technology may change the face of distance education dramatically in the coming decades. Already several countries in the region have experimented with satellite communications for instruction. The Indian Satellite Instructional Experiment has been mentioned above. In New Zealand and Papua

New Guinea extensive use has been made of the Pacific Educational and Communication Experiment by Satellite (PEACESAT) network since its inception in 1972. The PEACESAT programmes developed by Papua New Guinea have included education for self-government, as well as in-service training of teachers and medical, agricultural and administrative officers.

Other communications methods likely to be used with increasing frequency in the future are the telephone and various kinds of telewriters, devices which transmit handwritten information. And by combining different technologies, such as the telephone and computer networks, increased teacher-student interaction will become possible.

In the meantime, experts feel that there is a need to do more research on the potential of instructional radio. As radio already reaches much of the rural population and is about one-fifth as expensive as television, it seems well suited to the developing countries of this region. When supplemented with appropriate printed materials, it can be as effective as traditional classroom teaching or television, studies have found.

SECTION THREE

ASPECTS OF DISTANCE EDUCATION IN ASIA AND THE PACIFIC

BEST COPY AVAILABLE

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
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THE PLACE OF DISTANCE EDUCATION IN ADULT HIGHER EDUCATION – CHINA*

Characteristics of adult higher education

Well-tailored to the practical needs of production and work, adult higher education has a clearly defined objective; the content of teaching should be relevant and practical. What knowledge and techniques students have acquired can be easily applied in production and work. The participants in adult higher education are workers and the staff, peasants, cadres and teachers. Diversified, flexible forms of education have been adopted to accommodate constraints of different work schedules and background experience. The content of education includes science, engineering, agriculture, medicine, liberal arts, history, philosophy and economics. The methodology of teaching includes face-to-face learning, teaching through correspondence, radio and television programmes and individual self-study.

For the past year, nationwide reforms have been taking place in China – in science and technology education and within the economic system – to eliminate poverty and backwardness, and lead the country to prosperity and modernization. This involves the training of hundreds of millions of people at all levels, for different fields of activity. As one of the strategic priorities, education is breaking away from the traditional concept of being limited only to schools and is now being made available to virtually all the population, regardless of age, sex, type of employment or economic status.

To encourage workers' participation, both the state enterprises and the workers are being given incentives to participate in further education programmes. Enterprises may list expenses for workers' education under the cost of production, up to 1.5 per cent of the total wage. They may also spend part of their profit, after taxation,

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* From an article by Dong Ming Chuan and Unesco ROEAP ***Distance education in higher education,*** Final report of an Inter-country Study Visit-cum-Mobile Workshop, Sukhothai Thammatharat Open University, Thailand and Darling Downs Institute of Advanced Education, Australia, 6 - 16 September 1983.

on education and training. Workers may undertake study programmes, with the approval of their work units, on a full-time or part-time basis while receiving their full wages. Tuition fees are paid by the work units. Those who pass the strict graduation examinations are granted diplomas which are recognized as equivalent of graduates from regular and specialized courses in regular colleges. Their wages are set accordingly.

Peasant education has been successfully organized for the past 30 years. Peasants may opt for spare-time study, work release study, partial work-release study and study on fixed days, with the majority taking spare-time study. Those peasants reaching an appropriate standard of cultural, scientific and technical knowledge and acceptable level of scientific management are given preference when collectively run enterprises enrol new workers, select cadres or appoint technical personnel. Peasant-school graduates are also given first priority in employment for technical work and public office work. As most peasant-schools make use of existing classrooms, the peasant students assist the school to raise funds partly for their own benefit, or else pay tuition fees which are subsidized by the State.

Against this background, through Article 19 of its Constitution, which . . . 'encourages the collective economic organizations, state enterprises . . . and other social forces to set up educational institutions of various types . . .' and the promulgation of a resolution which points out that, 'Education for workers and the staff is an important way of tapping their intellectual potentials and training qualified personnel', China has set up an extensive network of training systems.

While distance education, in the form of correspondence, radio and TV classes, is making an impact in worker-staff education, peasant education and secondary vocational education, it has not yet developed far enough to more than supplement the traditional forms of education.

Forms of adult higher education

Radio and Television University. The Radio and Television University promotes modernization through training technical, management and engineering personnel; improving teacher qualifications; and training personnel in the specialized fields of finance, law, the liberal arts and agriculture. It also provides further opportunity for

the 95 per cent of secondary school graduates who are unable to gain a place in any of China's conventional colleges and universities. The university is run at several levels (central, provincial and municipal) with classes organized in the same way. According to 1984 statistics, the country has altogether 29 television universities with an enrolment of 599,100 students.

It is planned to launch a broadcasting satellite in the near future, and by 1986 to construct new UHF transmitters in nine principal cities. Eighty-five study centres will also be set up all over the country. There will be an audio-video lab, a library and a laboratory in each study centre.

Correspondence departments and night schools. Taking advantage of the faculties, buildings and equipment of the 456 conventional institutions of higher education, correspondence departments and night schools run undergraduate degree or diploma courses; training classes; and single subject courses to meet the needs of in-service staff. A few such departments and schools with better faculty and facilities are authorized to award bachelor degrees according to certain regulations. The enrolment is 319,000.

Other forms. The other forms of adult higher education are also described here. Cadres' training courses aim to provide training for responsible personnel of government departments, state enterprises and undertakings over a period of two to three years. Training classes of less than two years are also held.

Fifty-four colleges of management personnel provide training for the management personnel of state enterprises. They follow the same curriculum as conventional universities and colleges and have an enrolment of more than 150,000 students.

Local spare-time institutions of higher education, run by local governments, are attended by workers and staff who live near by.

Teacher training institutes (Institutes of Education) are in-service training establishments for secondary schoolteachers. They run diploma, degree and research courses, and organize training classes and special lectures. There are now 218 such institutes enrolling 163,000 students.

Universities for workers and the staff are run by industrial enterprises or government institutions for their employees. Graduates will hopefully become better qualified employees. The universitiess

also help technical personnel learn about new technology, provide training for management and administrative cadres and turn out primary and secondary schoolteachers for their sponsors. There are 850 of these local spare-time universities, with an enrolment of 192,000 students.

There are presently only four peasant universities with an enrolment of 900 students. By admitting capable peasants with agricultural management experience, the universities produce qualified personnel with scientific knowledge of agriculture for the rural areas. At the same time – responding to the different needs of agriculture, forestry, animal husbandry, sideline production and fishery – the universities run various types of training classes to disseminate and popularize scientific and technical knowledge.

In 1981 a system of higher education examination for the self-taught was formally set up. It combines individual self-study with social assistance for learning; with the State administering the examinations. In 1982, . . . 'the State encourages people to become educated through independent study . . .' was written into the new Constitution. The National Advisory Board for Higher Education Examinations for the Self-Taught, established in 1983, now administers examinations in 47 specialities of study through offices set up in 29 provinces, autonomous regions and municipalities.

For a long time education was provided mainly by the State. In recent years, however, various public sectors (democratic parties, academic societies and mass organizations) and individual citizens with the State approval, have undertaken some responsibility for adult higher education. Diversified, flexible forms have been adopted, with assistance for learning being the main thrust.

Responding to the needs of production and work, the provinces and government departments have run a great number of short-term training classes and established schools for the elderly. 'University classes' have also been run for both military and civilian purposes. Thus, various types of 'lifelong education' are being provided for the people.

The potential of adult higher education

Regional economic development requires well-trained personnel. According to personnel needs projections conducted in several

regions, and in view of the limited capacity of the existing institutions of higher learning to meet the demand, it is clear that the development of adult higher education has great potential. Studies in the economically advanced cities of Shanghai and Tianjin indicate that adult higher education bears the responsibility of turning out half of the special personnel required by these regions' economic development projections. In the economically and culturally less developed northwestern region, adult higher education has also been making progress in the past few years. Radio and television universities, universities for workers and the staff, correspondence departments and night schools have been established.

Adult higher education institutions have established links with industry and production. The broad masses of workers and the staff are highly motivated to study for the four modernizations. However, because of a relatively low level of scientific research, production and management, and a weak economy, the scope of education is still limited; the quality of education leaves much to be improved. Therefore, an important question for educators involved in higher education is how to co-ordinate adult higher education with education in general, and make it more relevant to the social and economic development of various regions.

Issues relating to distance education

At present distance education cannot meet the need for study from the broad masses. Due to inadequate facilities, China has not been able to satisfactorily combine correspondence courses and radio and television teaching. Television broadcasts reach only a limited area of China, and reception of signals is often poor in remote or mountainous regions, inhibiting the use of the medium for educational purposes. Rural students have difficulty in completing scientific experiments within their courses. At present correspondence students cannot obtain experimental kits directly from universities, and experiments for those television and correspondence students can only be done in the conventional universities and colleges. Also there is not any set of teaching materials which suits the characteristics of correspondence education. The future plans of the Radio and Television University to use satellite broadcasts and set up study centres with laboratories will help to overcome these problems.

The development of China's socialist construction requires the training of qualified personnel of various levels to raise their educational qualifications. The further development of television and correspondence colleges and universities should take place alongside the development of conventional universities.

To speed up the development of distance education, China has to raise the social status of distance education in higher learning and to provide manpower and necessary facilities to ensure its rapid development. Sets of teaching materials need to be developed which suit the characteristics of distance education. More qualified full-time teachers are needed.

More research into the problems of distance education systems needs to be undertaken to further promote development in the field, which in the long term will benefit a quarter of mankind.

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USING A SATELLITE IN DISTANCE EDUCATION – THE UNIVERSITY OF THE SOUTH PACIFIC

Introduction*

Applications Technology Satellite No. 1 (ATS-1), an experimental geostationary satellite, a cylinder five feet in diameter, six feet long and weighing about the same as four solidly-built men, was launched by the U.S. National Aeronautics and Space Administration (NASA) in 1966. From a position over the equator, midway between Hawaii and the Cook Islands, the satellite, which runs on solar power, covered approximately one-third of the earth's surface from an altitude of 23,000 miles.

NASA made available the radio relay portion of the satellite for a project known as Pacific Educational and Communication Experiment using satellite – Peacesat. Because of the very high frequency radio signal the satellite sends out, this signal can be transmitted and received by a very simple transceiver and an aerial system. This inexpensive equipment is as easy to use as any two-way radio equipment, such as that installed in taxis. The cost of equipping, setting up and maintaining a two-way station is only about US $2,000.

1972 was the first year of full operation within the Peacesat project. In April of that year the Unesco Social Science specialist was able to hold a seminar on Social Science in the South Pacific with the East-West Centre, Honolulu. The Physical Science specialist was able to speak, via satellite, to the Tonga Science Teachers' Association. Dr. Stenger of the University of Hawaii Physics Department, gave a 40-minute talk on his specialist field of elementary particles to the first year science students at the university. This talk was illustrated with transparencies that had been sent in advance. Following the talk, students were able to put questions to Dr. Stenger via the satellite.

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* Adapted from the UNDP/Unesco Secondary School Curriculum Development Project, 1970-1975. ***Terminal report.***

It was obvious satellite communication had tremendous possibilities. UNDP/Unesco was approached with a view to financing the equipping, setting up and maintenance of four satellite stations in the region that were without this facility. This request was granted, with the result that all countries in the Project[1] were in the satellite network.

Satellite communication made the possibility of regional seminars and conferences in relation to aspects of curriculum development a very easy matter. Such a satellite seminar on Social Science was held between participants in Tonga, Niue, the Cook Islands and Fiji in August 1974. The one-hour seminar was simultaneously recorded on tape. Similar such seminars and conferences were then held regularly.

The satellite was also used as an 'external classroom' of the university. Many students in the islands because of various circumstances, were unable to attend the university in person for degree and diploma studies. By a system of correspondence courses and by use of the satellite these students were now able to take university courses as external students. By means of the satellite it was possible to give tutorial assistance to many students in centres separated by great distances from each other.

Improving satellite tutorials[2]

Background. From 1974 until August 1985 the University of the South Pacific (USP) conducted tutorials from its Suva studio with its eight Regional Centres in the Cook Islands, Kiribati, Niue, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, using the medium of radio via the satellite ATS-1. From mid-1984 the satellite, as expected, began gyrating unpredictably and to drift eastwards from its station above Nauru, eventually becoming unusable.

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1. The countries were Cook Islands, Fiji, Gilbert and Ellice Islands (now Kiribati and Tuvalu), New Hebrides (now Vanuatu), Niue, Solomon Islands, Tonga and Western Samoa.

2. Adapted from : ***Improving satellite tutorials at the University of the South Pacific,*** by Garry Gillard and Ivan Williams. Paper presented at the Thirteenth World Conference of the International Council for Distance Education, Melbourne, Australia, 13 - 20 August 1985.

This experience is reviewed in the following paper. A series of case study tutorial recordings and a number of Flanders-type interaction analyses in two different semesters were used to gather information about tutor and student behaviour. Observations revealed that there was less student participation than desirable in tutorials. Student and tutor perceptions of satellite classes showed that they were valued additions to the basic distant teaching elements delivered by postal services, and that student contributions to the tutorials were desired. Following interventions to improve the quality and effectiveness of the classes there were indications that desirable changes took place.

Preliminary observations. A number of questions arose from the observations of satellite tutorial sessions being conducted in the first semester 1983, in terms of their contribution to students' learning, and in terms of their particular function within the range of learning experiences being offered to the students. These were:

a) How much effort and resources did the satellite tutorial deserve?

b) How much did the tutorials contribute to student's performance?

c) What did teaching staff think was the purpose of satellite tutorials?

d) Did others share the authors' view that the tutorials needed improvement?

e) If other people did, how might improvement be accomplished?

f) How might the necessary data be collected to answer these questions, and how would any improvement consequent upon the implementation of intervention strategies be known?

The considerable, though mainly in-house literature was studied, information from staff and students was sought by using simple questionnaires, and the tutorials themselves were observed and recorded by using a modified form of the Flanders Interaction Analysis system and, later, by one of the authors using a freer and more detailed recording of personally observed tutorial sessions. It was hoped that such recordings before and after interventions would reveal changes in the nature of the tutorials.

Nine useful replies were received from USP staff members. The USP Regional Centres in Tonga, Tuvalu and Kiribati collected responses from students who had attended tutorials using the satellite, with the Centre directors adding their own comments. From the second semester 1983 the Satellite Operators in the Suva studio compiled an interaction record of some 139 tutorials.

Constraints

Due to the narrowness of the bandwidth, and the low power of the satellite there was only a single channel in one-way use. In other words, communication was not continuous, as on the telephone, but had to be switched – with only one participant able to speak at a time.

The implication of this was that the system suffered from the disadvantages of all unidirectional media, including radio and television broadcasts, which cannot be interrupted or interactive, except by simulation. Of course it was possible to use the satellite like two-way radio communication, with rapid exchanges. However it was, in that sense a hybrid medium, and users had constantly to remind themselves not to exclude other speakers simply by failing to switch off their microphones.

The other major technical disadvantage of the medium was in the nature of the particular satellite being used at that time. Its gyrations and drift meant that reception was often not really clear, and could change quite quickly from 'fair' to 'bad', sometimes becoming completely unintelligible. Under these conditions tutorials were obviously risky and often disappointing.

Use

The 1973 submission which was the basis for the setting-up of the USPNet (as it became known), requested ten hours per week of ATS-1 time, half an hour each day for the External Classroom project (later known as Extension Studies). The Net became fully operational in September/October 1974. One course, the Land Tenure course, was designed to have satellite classes fully integrated into the mode of offer, and there was a weekly hour-long class (Benstead et al. 1975).

During the period January-October 1974, 18.6 hours were used for distance teaching, 6.7 per cent of the total. The Land Tenure

course was seen as a four-component package, comprising print, written assignments and study groups in Centres in addition to the satellite exchanges. For other courses there was tutorial assistance as requested by either tutors or students.

The report for 1975–1976 (Benstead 1977) distinguished Satellite Courses' (like Land Tenure) from 'Tutorials' and other courses. However, change in 1976 began to blur this distinction, in that some 'tutorials' were scheduled on a regular basis. In 1975 there were 59 hours of external teaching and in 1976 there were 107. Each credit course required a large amount of administrative time. It was found on the basis of evidence which is presented in the report that the success rate for external courses with and without use of the satellite medium was about the same, except for the 'Satellite Courses' which are cited as Land Tenure and Sociology – where the success rate was higher.

By 1984, 23 hours each week were available on ATS-1 for USP-Net. Of these about 11 were used during term for tutorials. There were three blocks of time available for USP use : one in the morning between 2000 and 2200 UTC [3], mostly used for 'meeting' and message traffic; one in the afternoon between 0200 and 0300 UTC, mostly used by organizations other than Extension Studies, and one in the evening between 0600 and 0800 UTC, which was divided into two, one-hour tutorials.

The breadth of the USP region created enormous problems in scheduling, due to the fact that there are four time zones, and that the dateline is straddled. So a tutorial finishing in Suva at 8.00 p.m. local time concluded in Rarotonga at 10.00 p.m. And Monday in Suva is Sunday in the three eastern countries. Working on Sunday is tabu in some countries, and public transport typically unavailable after an early hour (such as 6.00 p.m.). Factors like these reduced attendance drastically.

Another group of such factors are cultural ones. Requirements that people are at home when the evening meal is taken, and that they assist in the obtaining and preparation of the food are examples of constraints in the South Pacific. Young people may also not be allowed out after dark unaccompanied, particularly if they are female.

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3. Coordinated Universal Time

It was never easy to find a solution to the problem of scheduling. If the tutor was to be actually present, there was likely to be only one time in the week when this would be possible. And any given time might be too early in Honiara, on one side of the region, but too late in Rarotonga on the other. Or else there would be a conflict with work time of one kind or another, or with other types of responsibilities.

Despite these serious restrictions, in the semesters between mid-1983 to end-1984, 33 members of staff conducted 236 satellite tutorials and there were 1,668 student attendances.

Prescriptions

Guidelines existed (Apted 1981) which set out in detail a number of aspects of satellite tutorials to be considered by both students and tutors of USP. These were written when the University had a manager of the communication network. They were published and made available to tutors and students. They included advice about such things as technical aspects of transmission, objectives, preparation, and different types of tutorial and so on. For example, people conducting tutorials were told to start on time, learn students' names and voices, announce the topic, establish a regular format, share the time available and speak clearly. Students were told to get a special notebook for tutorials, come prepared, go over notes afterwards, familiarize themselves with equipment, not to be nervous. Unfortunately, due to staff changes and in particular the loss of the communications manager position, such guidelines had not been disseminated for a number of years and the actual tutorial sessions had not been co-ordinated or 'chaired'.

Observations

Before Semester Two 1983 began, the two satellite operators in Suva were instructed in the use of a proforma based on the Flander's Interaction Analysis system of recording teaching/learning transactions. At the end of every minute they were to record what was happening – who was speaking, and about what. The categories of their codes were :

O – operator business
C – establishing contacts

TI – tutor giving instructions
TQ – tutor asking questions
TL – tutor lecturing
TE – tutor giving encouragement
TS – tutor scolding (negatively criticising)
SQ – student asking a question
SE – student explaining (giving an answer)
LQ – local (Regional Centre) tutor asking a question
LE – local tutor explaining
S – silence
F – fault in transmission/reception preventing contact

It was realized that this was an imprecise recording device. It was kept simple so that the operators who had to 'manage' each session would not find this extra task too burdensome, and they were not educators skilled in identifying the nature of transactions. A fair degree of objectivity and consistency was sought also, so that observations might be collated and compared. For all its weaknesses the strategy seemed to provide useful data.

The information on the proformas was plotted graphically to give profiles of the tutorials, and quantified to produce proportions and ratios of the various time usages on an individual tutor basis and overall for the semester. The aggregate data for the second semester 1983 is in Table 1.

Table 1. USP satellite tutorials, Semester Two 1983
Summary of interaction analyses (n = 31)

Average student attendance	5 (range 1 to 10)
Number of USP tutors involved	13 (range of tutorials per tutor 1 to 9)
Time used of time available	63.8 per cent (range 100 per cent to 18.3 per cent)
Average length in minutes	12 to 55
Tutor talk as per cent of time used	81 per cent
Student talk as per cent of time used	16 per cent
Ratio of tutor to student talk	5 : 1
Average incidence of tutor questions per tutorial	2.66

The overall ratio of 5 : 1 for tutor talk : student talk may appear quite reasonable, even for a tutorial, and an hour containing ten such exchanges evenly spaced might be appealing. The graphs of individual tutorials showed the reality however – too many long periods of tutor lecturing and very few questions to prompt and encourage student talk.

Interventions

In 1984, Extension Studies lecturers likely to be offering satellite tutorials were encouraged to produce written materials following their planning for the tutorials, to enable their students to prepare themselves. They were guaranteed a weekly or fortnightly tutorial time. Informally also the results of the authors' inquiries about tutor/student perceptions of the purpose and value of the tutorials were discussed with these staff members. It was hoped that such awareness, the better preparation for tutorials by tutors and students, and the more efficient administrative procedures, would lead to greater interaction and, therefore, to tutorial sessions more consistent with what staff colleagues thought they should be.

The aggregate data collected for the semester following this intervention is shown in Table 2.

As may be seen, not all the improvements hoped for were realized. However there was much greater use made of the time available and an indication that tutors tried to reduce their own talking time and encourage that of their students. Tutor talk reduced from 81 per cent in 1983 to 76 per cent in 1984 while the average number of questions they asked rose from 2.66 to 5 per tutorial session. Obviously some tutors improved more than others. One actually reduced the ratio of tutor to student talk to 2 : 1. This indicated that careful administration and preparation, coupled with tutor will, can produce satellite tutorial sessions of desirable interactive communication.

Staff perceptions of satellite tutorials

A questionnaire distributed to staff members who had taught Extension Studies courses contained three questions :

1. What do you consider to be the main purposes of satellite tutorials?

Table 2. USP satellite tutorials, Semester Two, 1984
Summary of interaction analyses (n = 38)

Average student attendance	7 (range 1 to 42)
Number of USP tutors involved	13 (range of tutorials per tutor 1 to 9)
Time used of time available	93% (range 100% to 56%)
Average length in minutes	32 to 57
Tutor talk as per cent of time used	76%
Student talk as per cent of time used	10%
*Local tutor talk as per cent of time used	5.4%
Ratio of tutor to student (and local tutor) talk	5 : 1
Average incidence of tutor questions per tutorial	5

* The frequent attendance of these tutors appointed by the Regional Centres was a new feature. They often spoke for their students.

2. Do you think that satellite tutorials differ in their purpose and administration from face-to-face tutorials? If you do, how do they?
3. What do you think are the essential ingredients for a successful satellite tutorial?

Question 1. Responses fell into four classes of functions of the tutorials – cognitive, affective, social, and administrative, with a degree of overlapping between them.

So far as this small sample of staff members was concerned, the main purposes of satellite tutorials were considered to be to help maintain student morale and persistence, to answer students' questions about the course content, and to give the lecturers the opportunity to add to the content of the course as portrayed in the printed and audio study materials.

Question 2. Responses fell into four categories – tutor activities; student and centre activities; organization of the tutorials; and technical aspects.

The difficulty of encouraging student participation was emphasized as was the need for tutor pre-planning and care with enunciation and clarity of oral expression. The erratic attendance of students was also mentioned. It was also inferred that it was more difficult to plan a satellite tutorial than one on-campus and that the number of students participating in satellite tutorials should be limited.

Question 3. Responses here were in the same categories as Question 2.

Students and tutors should be better prepared and students should attend regularly if the sessions were to be useful. The absence of live visual communication was thought to be a serious weakness. Nearly all respondents mentioned 'discussion' and their desire that the students should do most of the talking at satellite tutorials. One comment which summed up the general feeling was, 'The differences between satellite and other tutorials lie not in the media but in the tutor'.

Student perceptions of satellite tutorials

Questionnaires were sent to each regional Centre Director for distribution to students who had participated in satellite tutorials in the second semester 1982 and/or the first semester 1983.

The replies received from three centres are analysed in Table 3.

The numbers attending individual courses were generally small. Tutorial groups varied from five to more than ten. While some university staff were cynical about the reward in terms of student impact for the time and effort spent on these satellite tutorials, it was clear that students did appreciate them. (A further factor affecting the decision on how much effort should be put into the satellite tutorials is the proportion of students who can attend them. This varies from country to country but usually lies between 25 per cent and 60 per cent of the students enrolled; remembering that these tutorials are not available to the vast majority of Fiji students who constitute about two-thirds of the total Extension Studies enrolments).

Conclusion

It is clear that at the time this investigation was conducted, those students who were attending the satellite tutorials of the USP

valued them as aids to their learning and demonstrated their valuing of them by quite regular and full attendance. This, plus the fact that each semester there were more requests from staff for tutorial time than the useful time allowed to the USPNet permitted, is evidence in favour of attention being paid to improving the quality of the tutorials. It may be that some staff members who offer tutorials did not share the views of most staff respondents of this survey who perceived those sessions as being essentially interactive and a time for the students to talk. Certainly the profiles of some of their tutorials showed long periods of 'lecturing' and few attempts to use techniques for encouraging student participation. Those tutors who were concerned to improve their tutorials in the ways discussed (and who wished to give their sessions a more controlled academic structure), seemed to have benefitted from the several intervention strategies employed by Extension Services. The Flanders-type Interaction Analysis instrument devised to record the tutorials and the graphical profiles based on it, seemed to be useful inputs for this intervention.

Table 3. USP extension studies students attendances at and perceptions of the value of the satellite tutorials offered in 1982/1983

USP Centre	Number of student respondents	Male	Female	20–24 years of age	25–29 years of age	over 29 years of age	Number of satellite tutorials involved	Number of courses offered	Attendance as a percentage of what was possible	Number of students considering satellite tutorials 'helpful'/'very helpful'	Number of students who would attend future satellite tutorials
Tonga	15	11	4	6	4	5	17	7	86	15	15
Kiribati	10	6	4	3	2	2	10	5	65	9	10
Tuvalu	5	3	2	1	2	2	7	4	86	5	5

Countries using a better satellite medium and with basically a one-language society could expect to have more success than experienced at USP. Setting those considerations aside, however, educators will face the same challenges in assisting distant students with their learning via this medium. The fundamentally hybrid nature of the medium must be confronted: how can it be used with optimal interactivity? And then, appropriate planning and instructional development must take place, as with any educational exercise. It must not be assumed that the medium is perfectly transparent, nor that it is some other medium, such as contiguous teaching, or a telephone. It must be dealt with in its own right.

References

Apted, Maurice J. (1981). ***Satellite tutorials: a guide for tutors,*** Extension Services, USP.

_____. (1981). ***Satellite tutorials: a guide for students,*** Extension Services, USP.

Benstead, G. (1977). ***Report for the experimental years 1975-76: USP Satellite Communications Project,*** Extension Services, USP.

Benstead, G., Northcott, D., and McMechan, P. (1975). ***Report for the first experimental year: USP Satellite Communication Project,*** Extension Services, USP.

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PLANNING, OPERATING AND EVALUATING A DISTANCE EDUCATION SYSTEM*

Introduction

This introduction has its main focus on the instructional system which is considered to be the key factor in any distance education operation and which perhaps more than anything else makes it unique. The comments are aimed primarily at administrators of institutions who are in the early stages of planning a new distance education system. The comments are relevant to both single purpose distance education institutions and existing institutions in the process of establishing a division of distance education. This could also provide the basis of a reassessment of certain critical features of well-established distance education operations and indeed the structure of institutions of higher education in general.

Each institution involved in distance education must inevitably respond to a variety of local influences and come up with a pragmatic operational system, matched optimally to its own context. More often than not, certain overriding practical, economic, social, or political factors will dictate the use of particular delivery systems and thereby delimit choices amongst instructional media. Despite these differences in operational systems, distance educators are joined together in a common purpose. Distance educators share a common mission – that of extending educational opportunities to a great many people who would otherwise have difficulty in gaining ready access to education. As well as a common mission, however, distance educators have also a common need. Distance educators have a common need for effective instructional systems.

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* From: Unesco ROEAP. ***Distance education in higher education, report.*** Inter-country Study Visit-cum-Mobile Workshop, Sukhothai Thammathirat Open University, Thailand and Darling Downs Institute of Advanced Education, Australia, 6–16 September 1983.

It could be argued that the essence of all education systems is teaching and learning and therefore all such systems have a common need for effective instruction. While few people would disagree with this point of view, the need for effective instructional systems is particularly significant in distance education, because distance education is different from other systems of education. It is different because in distance education a permanent record of instruction is created, unlike the transient nature of most aspects of conventional education, in which there is no permanent record of the instruction delivered. Not only is instruction in distance education permanent, it is also public. The availability of a permanent record opens the way for critical public scrutiny and the subsequent public evaluation of the educational process in a manner never previously encountered by teachers working in conventional systems of education.

Distance educators can view the existence of such a permanent public record of instruction as either an opportunity or a threat. Either way, it is certainly a challenge. It is a challenge to improve the quality of teaching and learning in higher education. On the one hand, it is an opportunity to liberate both teachers and learners from the much criticized lecturing grind of traditional face-to-face teaching. It is an opportunity to immerse both teachers and learners in a rich instructional experience based on a wide range of carefully planned learning experiences. On the other hand, it is a threat to the continued healthy development of distance education. If institutions are unable to respond to the challenge of producing good instructional materials and produce only poor quality materials, the lack of instructional quality will be exposed publicly time and time again. Such a lack of instructional quality could lead to the ultimate demise of distance education. In reality, distance educators have no choice, they must respond to the challenge. The existence of a permanent public record of instruction demands that distance educators develop instructional materials of the highest quality.

The need for effective instructional materials frequently leads distance educators to ask the question: "What is the best instructional medium?" While there is a certain virtue in using a variety of instructional media, the question of the best medium is not critical, since there is no best medium of instruction. Each instructional medium has certain distinctive characteristics which make it potentially useful in particular circumstances, but the extent to which this

potential is realized depends on the expertise of the teacher. Ultimately, the quality of instruction depends more on the instructional expertise of the teacher, than on any inherent quality of the instructional medium ***per se***. In short, there is no best instructional medium, there are only good and bad teachers.

A more important question for distance educators to ask is: "How can we best exploit the available instructional media?" Fortunately, the answer to this question has a common core, which is applicable to all instructional media. The answer lies in the relatively recent but rapid emergence of Behavioural Science and especially the area of specialization of instructional technology. Modern instructional technology presents distance educators with the opportunity to significantly improve the quality of instruction in higher education.

The emergence of instructional design techniques for analysing the structure of subject matter; assessing the critical learning attributes of students, specifying clearly required learning outcomes, selecting appropriate learning experiences in a carefully delineated sequence and designing appropriate assessment instruments with associated diagnostic-remedial support systems has created the potential for a significant improvement in the quality of teaching and learning in all systems of education.

The fact that there has been no noticeable impact of these potentially powerful and sophisticated instructional technologies is due largely to the tradition-bound organizational structures of conventional education. In the main, educational administrators in colleges and universities have remained committed to traditional reward structures which promote research and publication rather than good teaching. There does not appear to have been any concerted effort to attack the problem of implementing institutional change in the service of better instruction. Herein lies the opportunity for distance educators, especially those embarking upon the initial establishment of a distance education system. Relatively unimpeded by traditional organizational structures which protect outmoded reward structures, and which foster old technologies, distance educators establishing a new system have the opportunity to exploit the substantial practical alternative, recently made available by the emergence of instructional technology. The administrators of new systems of distance education have the opportunity to create a new

organizational infrastructure, capable of supporting the production of instructional materials of the highest quality.

The proposed infrastructure should also cater for the needs of teaching staff. With the emergence of instructional technology, it has become increasingly evident that subject matter experts in the various disciplines do not know how to teach. Add to this the public dimension of distance education, which demands that teachers emerge from the privacy of their own classrooms and display their teaching abilities to a wider audience, which includes their peers as well as their students, and it is not surprising that many teachers involved in distance education feel somewhat threatened. In the new infrastructure, then, there is a need to provide support for academics experienced only in traditional face-to-face teaching, who find themselves thrust (like the emperor without any clothes), into the public arena of distance education.

What then are the essential attributes of the proposed new infrastructure? Bearing in mind that any radical departure from existting traditions is unlikely to receive support, the basic first step required is to adopt a course team approach, whereby a number of teachers rather than a single academic is made responsible for the development of a course. After all, there is a certain safety in numbers and the threat of the public arena is more readily accommodated when the responsibilities for producing a distance education course are shared.

An increase in the number of teachers working on a course is not sufficient to change significantly the quality of instruction. In general, subject matter experts simply do not have the sophisticated instructional skills required to produce distance teaching materials of a high quality. They need the assistance of experts in instructional design — the scientists and technologists, whose professional discipline is the instructional process. It is the addition of competent instructional designers to the course team that is the single most critical element of the proposed new infrastructure. Only with the systematic deployment of the new instructional technologies will there be any chance of a significant improvement. Depending on the range of available instructional media, it could also be desirable to add to the course team relevant specialists in media, including perhaps audio producers, video producers, graphic artists, and editorial staff. But without the specialist input of instructional designers,

there is a danger that sub-standard instruction will be given a technical and artistic veneer that deludes the public, though not the student, into believing that a quality product is being made available. In short, instruction is a complex process requiring the diverse inputs of a multi-disciplinary team of specialists. The proposed new infrastructure should attempt to create an organizational structure that will support such a multi-disciplinary approach.

An essential characteristic of the necessary infrastructure is the reorientation of traditional organizational structures, roles, and responsibilities away from patterns and reward structures that assume that the essence of instruction is its content. It must be acknowledged that the subject matter expertise that is currently accorded the overwhelming responsibility for instruction is only part of the total process.

Throughout history, it has been assumed that the essence of instruction is subject matter content, and therefore the subject matter expert has always assumed authority. Because of this traditional authority, there is a danger that instructional design experts will find themselves in a subordinate position with the major responsibilities for teaching still lying with the subject matter expert. It is critical to the success of the distance education venture that the infrastructure creates the organizational structure for a democratic exchange between subject matter and instructional design experts. In short, instructional designers should have the same appointment status and working conditions as subject matter experts. Some institutions have attempted to maximize the impact of instructional design experts by creating an infrastructure which institutionalizes a division of responsibilities within the course team structure, whereby subject matter experts are made responsible for the determination of what to teach, whereas the instructional design experts are made responsible for how to teach. While such an organizational strategy may not be possible in all institutions, the opportunity for improving the quality of instruction in higher distance education will not be grasped unless an infrastructure can be created that maximizes the impact of instructional design specialists.

It has been emphasized that distance educators share both a common mission and a common need: a common mission to extend educational opportunities, and a common need for effective instruction. If distance educators are to continue the pursuit of their

mission with increased efficiency, they must first satisfy their need for effective instruction. To do this, they must break away from the traditional academic infrastructure, wherein patterns of authority are related to the content of, rather than the process of, instruction. The administrators of institutions involved in distance education have the opportunity indeed, have the responsibility, to create an organizational infrastructure that exploits the power and sophistication of the new instructional technologies. It is time for distance educators to lay the foundations for an increase in the efficacy of the instructional process, thereby creating a new academic tradition.

Planning the distance education system

What is the general context in which planning is being undertaken?

Needs and goals. Planning for distance education should be based on the identification of social, economic, and personal goals that cannot be achieved by existing services.

Questions	Considerations
Why is your country interested in establishing distance education at a particular level or levels?	Distance education should : promote greater national equality.
Have particular social, economic, personal needs been identified that can only be met by distance education?	maximize access across the country for all students who meet the entrance requirements.
Are there existing groups to be served by the distance education system, or are new groups identified?	provide vocational and technical training to assist national development.
What does your country aim to achieve by instituting distance education, that cannot be achieved by other means?	retrain persons on-site without removing them from their present work. contribute to the goals of national development.

Demography. Planning for distance education should take account of the characteristics and distribution of population.

Questions	Considerations
What is the total population, and what proportion lives in rural areas?	Distance education planning needs to take account of : relative youth of populations. language differences in population. remote locations of students. centralization of the educated. high per cent of populations in rural areas. special effects of climate. urban drift. 'exporting' of skilled manpower. male/female ratios.
Is the rural population increasing/decreasing?	
Are there distinct regions, identifiable by geography, social, or language groupings, etc.?	
Are there distinct languages/dialects, and is there a common language (lingua franca)?	
Are the 'best-educated' spread throughout the country, or centralized in main centres?	
What proportion of the population will be involved with the distance education system?	

Services. Planning for distance education should take account of the services already available, and those likely to be available in the future.

Questions	Considerations
How regular/reliable is the mail service? Will it be by air, land, sea, etc.	Mail services are reliable in most countries even if lengthy in some because of factors such as monsoons and villages distant from main roads. Electricity is available in at least most public/community buildings.
Is electricity available throughout the country? In all homes, public buildings, etc.?	

Questions	Considerations
How regular is transport from rural to urban?	Transport systems are relatively reliable in most countries.
Is the telephone network extensive? Reliable?	Telephone networks are typically extensive in urban areas but not outside these areas.
How readily available are broadcast radio? Television? Satellite?	Broadcast facilities exceed reception facilities in some countries. While broadcast facilities exist these are not always available to distance education (cost).
How readily available are cassette recorders, videotape recorders, home computers, etc.?	Most public/community facilities have reception capabilities.
	Rural areas and remote areas have least developed infrastructures (but many students – see Demography).
	Radio is available in all countries (transistors rechargeable).
	All students both face-to-face and those studying at a distance must be seen to be treated equally.
	It may be possible to use military and paramilitary networks.
	Study centre can be an important element in distribution.

Present provisions. Planning for higher distance education must take account of existing provisions for education in general and distance education in particular.

Questions	Considerations
What proportion of the population presently completes secondary education?	Small proportions of populations complete secondary education.

Questions	Considerations
What proportion of these presently receive tertiary education?	Smaller proportions complete tertiary education and some of this is 'exported'. In some countries, at least one institution per country offers distance higher education. Few staff in institutions are trained in teaching at a distance.
How many institutions presently offer higher education?	
How many of these presently offer distance education courses? Where are these institutions located?	
Are there specialized institutions that provide for the whole country in their specialized field?	
Are staff in existing institutions trained for teaching at a distance?	

Note: Similar questions must be asked when planning for distance education at other levels.

Finance and resources. Planning for distance education must take account of the cost of all operations, and the availability of provision of suitable resources.

Questions	Considerations
How is education financed, and will distance education be financed similarly?	Institutions appear to gain flexibility in planning where finance is not provided wholly by government. As well as resourcing institutions payment of fees can motivate students. Managerial and administrative flexibility in respect of variations in instructional techniques used and delivery systems employed as a vital resource.
What space and buildings will be needed? Do any of these exist?	
What personnel can be afforded in teaching? Administration? Do any of these exist, or will they have to be recruited and trained?	

Questions	Considerations
What media can be afforded? Do any of these exist?	Choice of delivery systems should take into account both ideal systems (as goals to be achieved) and existing systems as pragmatic options for the present. Student tuition fees are a necessary resource enabling innovation in system development. The significance of study centres as part of a distance education delivery and feedback system is important. Mobile teams of specialists used for upgrading existing staff can make the system more efficient.
Is finance assured for the continuing support of systems, once established?	
Will finance be best applied to adapting existing resources or to creating new ones? Or both?	

Priorities and time-scale. Planning for distance education should be based on an explicit set of priorities and an achievable time-scale.

Questions	Considerations
What priorities have been stated by government, ministry, advisory committee, etc., for institutions? programmes? target clientele?	Language translation. For primary teachers. For literacy workers. For secondary teachers – science, mathematics, English, vocational technical. Competency-based training. Certificates, diplomas, degrees.
What operations should be achieved in one year? two years? five years?	

What is the specific context in which planning is being undertaken?

Institutional model. Planning for distance education should consider the features of different institutional models and the capability of existing institutions to adopt new modes of teaching.

Questions	
What advantages are there in an institution offering both internal and distance teaching? (integrated model)	**Advantages of institution using an integrated system** maximizes equality of treatment. maximizes similarity of standards. has teaching benefits to teachers and thus to students. maximizes cost savings in production and use of materials. utilizes face-to-face regional centres and external materials.
Are there existing institutions which could adapt to the integrated model? Will new ones have to be established?	
What advantages are there in an institution offering distance teaching exclusively? (separate model)	**Advantages of a single purpose institution** selection of committed staff easier. ease of training new staff. specialization of staff. actually develops distance teaching materials **not** just using textbooks used by face-to-face students. no role conflict for staff.
Are there existing institutions which could adapt to the separate model? Will new ones have to be established?	
If there is to be inter-institutional co-operation how will this be co-ordinated?	

Target clientele. Planning for distance education should identify the social, educational, and economic characteristics of the clientele of learners expected to undertake courses.

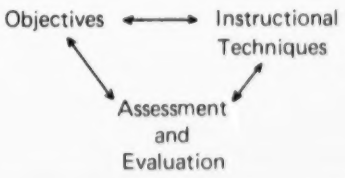
Questions	Considerations
What is known of the age and experience of the target clientele? Are they adults? Youth? Are they in the workforce?	Target clientele women.

Questions	Considerations
Are they being trained for entry to the workforce?	city workers admitted to distance education courses, reduces travel and city congestion. vocational needs. disadvantaged. rural population.
Where are target clients located, and what access will they have to support systems (mail, libraries, audio visual aids, etc.)?	
Are there language, sex, and other cultural factors to be considered?	
What are the reasons for the clients wanting to study and what will they expect to get out of it?	
Will there be priorities for entry to courses, e.g. remoteness, access to supervision, etc.?	

Teachers. Planning for distance education should consider the source and training of suitable teaching staff.

Questions	Considerations
Will distance teaching be added to the duties of existing staff?	Need for teachers with an interest in teaching adults. Need for consistent philosophy and commitment to team work, and to distance education. Be cautious about teachers allocated to programmes simply because they are recent graduates. Negative/conservative belief systems of internal teaching staff.
Will special teachers be recruited for distance teaching?	
Will teachers be full-time, part-time, or on variable term contracts?	

Questions	Considerations
What criteria will be used for appointing staff for distance teaching?	Need for specialist training of staff who will be engaging in distance teaching – knowledge and skills, attitudes and beliefs.
What training in distance teaching will be needed?	Learning on the job necessary but not desirable as the only form of training.
	Team approaches to preparation/design of materials necessary – the design task is beyond the abilities and working conditions of an individual.
	Use outside content/subject matter specialists on contracts as necessary.
	Good internal teachers may fail to become good external teachers if training in knowledge and skills only is employed.
	Recruit (on contract) well respected academics as members of course teams. This produces perceptions of high standards. persons with good reputations who function as advocates of the institution.
	Consider payments to writers of materials even where these persons are full-time staff.
	All instructional design capabilities should be present in a single person, i.e. knowledge of and skills in

Questions	Considerations
	

Curriculum. Planning for distance education should consider relevant curriculum factors such as courses to be offered and teaching methods to be used.

Questions	Considerations
What types of courses will be offered, and in what sequence? Are there priorities? (e.g. for technology, agriculture, general education)	Distance education is not a universal panacea for all social, economic, educational ills. Curriculum should be more flexible than traditional disciplinary institutions, i.e. **problem-centred.** Curriculum must be consistent with needs of the country. Short courses, long courses. Cost benefit of media to be used.
Will courses be short (specific skill/knowledge, etc.) or longer (more professionally oriented)? Will qualifications be granted?	
What teaching methods will be used? All distance methods or some face-to-face? Will this be on-campus, using local tutors, or will staff travel to students?	
What language(s) will be used?	
Will specialized equipment be needed, and how will students obtain it?	
Will the teaching style be didactic or interactive? How much and what type of feedback will be provided for students?	

Standards. Planning for distance education should consider how acceptable standards are to be established and maintained.

Questions	Considerations
What will be the entering standard of students?	Standards need for outside moderation. need for evaluation. teacher's qualification comparable with their counterparts in traditional system.
What will be the minimum qualifications of teaching staff?	
What range of qualifications will be offered, and how will comparability with other similar qualifications be ensured both locally and internationally?	
Will there be outside moderation of standards?	
What forms of evaluation will be developed to ensure consistent standards?	

Operating the distance education system

Preparation, production, delivery. This section covers the teaching process. Initially, it is concerned with preparation, production, and delivery of teaching materials. It lists many teaching techniques. An institution must choose the most cost-effective method, e.g. Darling Downs Institute of Advanced Education (DDIAE) would like to use more television, but it is too expensive in Australia. An institution should strive for the cheapest effective method of teaching. Once the appropriate teaching techniques have been selected, the institution must decide the best organizational structure to produce the materials for these techniques, e.g. unit teams as opposed to teachers working individually. Consideration should always be given to the possibility of co-operation with other institutions if this means a saving in resources.

Teaching techniques	Considerations		
	Preparation	Production	Delivery
1. Specially written study books (inc. introductory booklets and study charts). Supplementary notes for other media. Books of Readings.	Availability of local writers (imported writers). Availability of instructional designers (imported I.D.'s). Can existing materials be purchased? (translation problems) Copyright. Editing. Graphic Artists. Photographers. Is the unit team approach to be used? Monitoring of teams. Instructional design quality and academic content responsibility?	Reproduction facilities – printing. Scheduling of production. Time constraints on writers (writing, editing, proofing). Production based on quotas. Time constraints on production area. How often can materials be revised? How big is each print run? Storage and cost. Specialist staff.	Post and Courier. Regularity and reliability. Adequate packaging. Cost.
2. Textbooks already published.	High purchase price. On-going availability.		
3. Journals/ Newspapers.	Availability. Cost.		
4. Experimental handbooks (log books).	Technical knowledge. On-site supervisors. Equipment availability.		
5. Slides Filmstrips Film	Technical expertise. Instructional expertise.	Studios.	Student access to replay equipment.
6. Video-tapes Audio-tapes	Technical expertise. Instructional expertise.	Studios. Need for long-term planning.	Student access to equipment. Are audio-tapes to be returned for reuse? Packaging.
7. Radio broadcasts T.V. broadcasts	Technical expertise. Instructional expertise.	Studios. Need for long-term planning.	Fixed time requirements. Broadcast and receiving equipment. Transient nature of broadcasts (need for supplementary material).

Teaching techniques	Considerations		
	Preparation	Production	Delivery
8. Telephone/ satellite tutorials	Teachers. Build into lessons. Respond to requests.	Need to schedule ahead. Availability of study centres. Co-operation of telephone authorities. Should they be recorded for wider distribution?	Loudspeaking telephone.
9. Computing facilities.	Technical expertise in courseware preparation. Use for teaching data processing and systems, or for computer based learning, or computer managed testing.	Compatability of equipment.	Technical expertise in hardware/software. Computer facilities on-campus and at study centres.
10. On-campus residential schools.	Teachers. Practical books. Compulsory or voluntary. Duration.		Accommodation and teaching facilities. Travel requirements/cost for students. Experimental equipment, tools.
11. Off-campus residential schools	Teachers/supervisors. Practical books.		Teaching facilities. Travel and accommodation.
12. Fieldwork.	Supervisors.	Liaison with institution.	Suitable co-operative firms. Experimental equipment/tools.
13. Self-help study groups.	Leaders.	Assistance from institution.	Study Centres.
14. Experimental kits.	Designers (academic and instructional).	Technicians.	Cartage. Breakage. Co-operation of others in the home, power, water supplies.
15. Off-campus tutorial assistance.	Supervisors.		Study Centres.

Teaching techniques	Considerations		
	Preparation	Production	Delivery
16. General points	Print is seen as the preferred single best medium for instructional and logistic reasons – do not be over-impressed with technology. The course team structure is regarded as essential. There is a need to differentiate roles and responsibilities of: academics, educational technologists/instructional designers, editors, etc.	The main problems are a lack of control over outside writers, lack of commitment of academics to meet deadlines. There is a need for regular monitoring of preparation and production schedules. There is a need for regular reminders of deadlines for academics.	The delivery system should capitalize on established, traditional, personalized networks (e.g. to study centres for local collection, distribution, etc.)
	Course teams need to engage in planning and development prior to writing/production of materials. Educational technologists/instructional designers should have the same status and salary as academics. Most academics need training to teach effectively at a distance. Suggested approaches: course team, seminars, workshops, self-instructional materials, use of model materials of excellent quality.		

Student support

Techniques	Considerations
Continuous assessment with feedback	All types of regular assessment feedback assumes an efficient communication system. Relatively quick turnaround. Need to monitor flow and turnaround (manual or computer). Examination Centres/Supervisors. Computer managed assessment, cheating, information.

Techniques	Considerations
Local tutor support	Availability of suitable persons. Raise student costs. Need to brief, train, and monitor part-time staff.
Guidance and counselling by telephone, mail	Availability of counsellors. Finding students who need guidance.
Enquiries/complaints	Need for quick turnaround. Need to monitor (yellow forms). Whose responsibility (report forms). (Mail turnaround register).
General points	The best support is quality materials which are not totally dependent on other aids, institutional feedback, etc. The local support can circumvent total dependence on regular delivery systems. The main centre can produce 'master' materials, then send to local centres for reproduction, distribution, support. There can be problems of providing adequate student support if timings are right (e.g. semester vs year) and assignment demands high. It is easier to organize academic support than personal contact between remote student and lecturer, therefore local support important from existing local institutions. Problems can arise with slow or poor marking of materials by instructors.

Administrative services

Techniques	Considerations
Overall system Technological Manual/	Is adequate skilled labour available?

Techniques	Considerations
Overall system (cont'd) Technical Manual	If inadequate skilled labour available, then can unskilled labour be trained? Should skilled labour be imported? What is institution policy on staff? Is technical support available? Should emphasis be placed on capital or labour? Social consequences resulting from use of technology. Are specialist buildings available for technology?
Course publicity Posters Papers Radio T.V. Employers Sport Arenas/Billboards	Will quotas be met irrespective of publicity? Are we striving to reach every person? By using any one medium, will we be reaching only a select group? Are there any cost constraints? Should publicity be attractive/eye catching or informative?
Enquiries	What details should be recorded? Is return material available? Turnaround time to be minimized.
Enrolment Offer, registration, acceptance/rejection, enrolment confirmation	Recording of enrolments. Have quotas been achieved? Should unsuccessful candidates be placed on a waiting list? Are any time constraints applicable? Do guidelines exist for assisting decision making, e.g. exemption claims? Are enrolments accepted without full documentation being enclosed? Can students from outside your country apply? Are restrictions placed on students living in inaccessible areas?

Techniques	Considerations
	Are units varied without consultation with students?
Examinations	
Venues	How many students to sit for exam?
Supervisors	Is timetable clash-free?
Security	Notification of students.
Distribution	Are suitable examination rooms available?
Return	Proximity of nearest exam centre to student.
Recording of results	Are reliable supervisors available?
Notification of results	What security exists for papers (exam and scripts)?
Student progress	Will exam papers be able to be returned speedily?
	Marking, recording results and notification to students.
	Analyse student progress – eligibility to continue/graduate.

Evaluating the distance education system

Process evaluation. Process evaluation involves gathering data on whether the components of a system are functioning as expected to answer such questions as :

Why are only certain objectives being met in particular courses?

Why are only a certain proportion of student graduating in minimum time?

Why are audio-tapes provided in students' study materials not being used?

Why is turnaround time on student assignments longer than expected?

Why are costs higher than expected in a production sub-system?

For example, process evaluation of an administrative support sub-system, might indicate ways in which student records could be

used to better indicate to a production sub-system how many packages of student materials need to be produced. This could produce cost savings in the production sub-system.

Questions	Considerations
What is the focus of evaluation?	
What elements of the system need evaluation? For example, delivery sub-system – mailing – receiving student assignments student support sub-system – quality of feedback provided – turnaround time for marking – costs throughput graduating student – student drop-out course preparation sub-system – effectiveness – cost	Is the focus on total system or sub-system components? Is the focus on student outcomes or system outcomes (product evaluation)? Is the focus on the functioning components of the system (process evaluation)? Is the focus on system effectiveness? Is the focus on instructional effectiveness?
What is the scope of evaluation?	
How much of the total system is to be evaluated? How deep is evaluation to be? For example, total production sub-system including scheduling, purchasing of material, utilization of resources, roles and function of staff, production flow over time, technical quality of products, effectiveness of quality control mechanisms, etc.	What scope of evaluation is desired/feasible? Consider the institutional effects of resources (human/material/time) on feasible scope. Consider the effects of time to complete study on scope.

Questions	Considerations
What information is required? For example, Information about ***processes.*** ***How does a particular sub-system operate*** – e.g. course preparation system – how does this compare with how it is planned to operate. Information about ***products. How many students*** pass all first year courses in minimum time.	What decisions can evaluation usefully service? What decisions will be influenced by inputs from outside institutions? What form of evaluation will be most useful to decision makers? Consider – evaluation by decision makers – evaluation by separate unit within institution – evaluation by unit outside institution – levels within distance education system at which evaluation is to be carried out. How are information needs to be made known to evaluators if evaluators are a separate group?
What resources are needed to support evaluation? For example, if the student support sub-system were being evaluated what resources would be needed to accomplish this at the required scope and provide the information required.	Financial resources. Time expended on this task. Staff expertise and skills. Resources are needed to analyse information collected. Attitudes of staff. Organizational attitudes to evaluation.
What costs can be expected to be associated with evaluation? Evaluation may be perceived as threatening by some persons. Consider the case of an evaluation of the student support system. Here data might be gathered on	Perceived threat and effects on the functioning of the system. Allocation of resources to evaluation – these could be allocated elsewhere.

Questions	Considerations
such things as quality of feedback to students on assignments, turn-around time on assignments, and quality of support at regional study centres. This might be seen as threatening by the staff discharging these functions.	Need to institutionalize evaluation. How can this be accomplished? Should evaluation be a formal compulsory part of the total system, or should evaluation be optional? Consider resource implications.

Conducting process and product evaluations. Outcomes are the (a) exploration of means of ensuring that data required are collected; (b) awareness of variety of methods available to collect data; (c) consideration of means of ensuring that evaluation reports are acted upon; and (d) consideration of criteria which evaluations should meet if they are to be effective.

Questions	Considerations
How can it be ensured that all data required are collected?	
For example, will a single individual whether decision maker or evaluator, be sure enough of precisely what data is required? If the student support sub-system is the subject of an evaluation, should staff from this system be involved in determining data to be gathered?	The use of systems diagrams and flow charts to help identify data required. These could assist by: The use of particular techniques to maximize the range of inputs as to data required. Techniques such as: Prioritizing data collection tasks in terms of urgency importance feasibility of collection Relationships between evaluators, decision-makers and audiences for evaluation reports. The role of evaluators in determining data to be collected should be . . . The role of decision-makers in determining data to be collected should be . . .

Questions	Considerations
	The role of audiences of evaluation reports in determining data to be collected should be . . .
What methods are most feasible for collecting and analysing the required data? For example, if regional study centres are used, it may be possible to have regional staff in these centres distribute and ensure the return of questionnaires to all students.	Advantages and disadvantages of particular methods in particular situation in terms of: speed cost accuracy (validity) Optimal use of existing resources, such as: sources of information, such as: literature, expert judges within institutions, expert judges from outside institutions) students, authors of materials, instructional designers, Unesco personnel, personnel from other institutions Existing data from institutions and government agencies unobtrusive sources such as: use of resources (e.g. library) by students. Social/economic indicators in appropriate sections of the community where students' new knowledge and skills would be expected to have effects, such as: improvements in agricultural production improvements in maintenance of machinery

Questions	Considerations
	Means of collecting data quantitative (statistical approaches) such as, surveys, qualitative (non-statistical approaches) such as, student letters, other communications. Advantages and disadvantages of a single method being almost always used – such as surveys. Advantages and disadvantages of trying to obtain more than one measure in a particular area, such as surveys of students plus reports of those who make use of students skills and knowledge. Data analysis techniques. What resources are needed? What resources exist? What is the optimal use of these resources?
How can it be ensured that information collected is acted upon? For example, it is possible that an excellent, potentially useful evaluation study can be conducted but not be disseminated or even if disseminated, not be acted upon.	What criteria will persons involved apply when judging evaluations, such as: understable logical objective. How best can evaluation reports be disseminated and what may be the effects on dissemination of 'ownership' of reports or data? Techniques considered could be: group meetings. How can action on evaluation reports best be ensured through legislating for action. making action optional. encouraging action.

Questions	Considerations
	What may be the effects of particular approaches to ensuring action?
What criteria will evaluation studies have to satisfy to be useful to the distance education system? For example, evaluations, no matter how potentially useful, may be accepted and rejected on various grounds by various persons. Any evaluation which is not acted upon wastes resources.	Will criteria typically applied to research studies be applied to evaluation? Criteria such as, validity. Which of these have the highest priority? Will practical criteria be applied? Criteria such as: resources utilized costs timelines Which of these have the highest priority? Will particular groups or sub-systems have particular criteria which evaluation should meet? Criteria such as apparent objectivity

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SECTION FOUR

BIBLIOGRAPHICAL SUPPLEMENT

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 26, December 1985

BIBLIOGRAPHY
ON
DISTANCE EDUCATION IN ASIA AND THE PACIFIC

This bibliography is a selection of titles from the holdings of the library of the Unesco Regional Office for Education in Asia and the Pacific, Bangkok. The titles are mainly those published within the last five years. Some earlier titles related to Distance Education were included in an earlier bibliography on Open Education which was published in the *Bulletin of the Unesco Regional Office for Education in Asia and the Pacific*, no. 19, June 1978.

The Educational Documentation and Information Service (EDIS) of the Unesco Regional Office for Education in Asia and the Pacific will appreciate being notified of documents of Asia and the Pacific on and related to distance education in the region. Better still, readers may wish to send the actual documents to Unesco EDIS, Bangkok.

ASIA AND THE PACIFIC

[APEID] Regional Seminar on Further Training of National Officials and Specialists in Distance Education, Islamabad, Pakistan, 8-18 August 1983. ***Training of personnel for distance education, report [of the Seminar] organized by the Asian Programme of Educational Innovation for Development in collaboration with Allama Iqbal Open University in Islamabad.*** Bangkok,. Unesco, 1983. 108 p.

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Participants from India, Indonesia, Malaysia, Nepal, Pakistan, Philippines, Republic of Korea and Sri Lanka: analysed country experiences on training of distance education personnel; reviewed major issues in identifying target groups, problems and issues in distance education programmes and their implications for training distance education personnel; specified the learning needs of various categories of distance education personnel including training design; prepared draft plans for national pilot follow-up activities/programmes by countries; and selected, improved and suggested for further development exemplar materials, methods and built-in evaluation for distance education courses.

[APEID] Study Group Meeting on Universalizing Education, Bangkok, 26 September – 7 October 1978. ***Universalizing education; new techniques for preparing educational personnel.*** Bangkok, Unesco, 1979. 128 p. (Asian Programme of Educational Innovation for Development) 371.2 APE

Motivated by common problems such as illiteracy, shortage of qualified teachers, and the need for effective teaching approaches, participants from ten countries met to discuss possibilities of adoption of new techniques to facilitate the universalization of education. The report contains highlights of their experiences on the design and use of new educational techniques. This is followed by a synthesis of experiences in the preparation and upgrading of different categories of teachers and other educational personnel and guidelines on use of new educational techniques. Appended to the report are proposed elements for redesigning and development of distance teaching programmes in two countries.

[APEID] Sub-regional Course on Educational Broadcasting, Kuala Lumpur, Malaysia, 3-16 October 1981. ***Report.*** Bangkok, Unesco, 1982. 42 p. 791.4 APE

Organized in collaboration with the Asia-Pacific Institute for Broadcasting Development (AIBD), this course was a follow-up activity of the four national workshops on educational broadcasting held in India, Japan, Philippines and the Republic of Korea. The main feature of the report is the synthesis of the four national reports, and is aimed at helping programme planners, administrators, policy-makers and utilizing agencies with regard to: (a) policy decision on the role of broadcasting; (b) procedure and mechanism of implementation; (c) utilization; (d) evaluation; (e) problem areas; and (f) future projection.

The report also contains a simulated exercise concerning the use of media in solving educational problems, in which the participants took part. This is expected to be of immense help in training programmes.

APEID Sub-regional Training Workshop on Distance Learning Systems and Structures – Training of National Officials and Specialists, Colombo, 5-18 July 1984. ***Distance learning systems and structures – training of distance educators.*** Bangkok, Unesco, 1985. 86 p. 374.4 APE

The country reports showed a wide range of experience and possibility in the provision of distance education. Some countries have plans to offer distance education while other countries can claim decades of distance education that is now undergoing renewal and revitalization. All countries, however, indicate the need for training of their distance education personnel.

[APEID] Technical Working Group Meeting on Distance Learning for Teacher Education, Allama Iqbal Open University, Islamabad, Pakistan, 4-16 November 1981. ***Distance learning for teacher education; report.*** Bangkok, Unesco, 1982. 3 v. 374.4 APE

The Meeting was convened to review, examine and develop materials used in distance learning for teacher education. The Meeting produced a three-volume report of the Meeting:

Volume I : Current status, programmes and practices
Volume II : Guidelines on development of materials
Volume III : Exemplar materials

The first volume documents experiences in distance learning materials of the participating countries, national follow-up activities, and suggestions on distance learning. The participants emphasized that distance educators should have easier access to regional training activities, materials produced in the region, and a specialist association for distance educators.

The second volume contains two sets of guidelines. One set is on alternative structures and strategies in organizations, addressed to policy-makers and senior administrators. The other set is on processes for developing materials, addressed to teachers and others responsible for providing learners with distance learning materials.

The third volume consists of 11 exemplar materials on distance learning drawn from those of nine countries of the region, and classified into: correspondence course materials, self-learning materials, programmed texts, radio and television.

APEID Technical Working Group Meeting on Educational Broadcasting, Kuala Lumpur, 19 November – 10 December 1979. ***Production and utilization of educational broadcasting programmes; report.*** Bangkok, Unesco, 1980. 55 p. 791.4 APE

The objectives of the Kuala Lumpur meeting were to discuss problems and exchange experiences in educational broadcasting in the region, to identify training needs and to develop guidelines for the production of radio and TV programmes. The report provides a summary of educational broadcasting in the participating countries, and outlines common problems and trends. Guidelines for the development of educational broadcasting services apply specifically to the universalization of education and the special needs of rural communities.

Asian Centre of Educational Innovation for Development (ACEID), Bangkok. ***Policy studies in Asia – the training of educational personnel: India, Nepal, Pakistan, Philippines, Thailand.*** Bangkok, Unesco, 1979. 98 p. 370.71 ASI

Specialists in the five countries mentioned in the title above prepared study papers on the preparation of educational personnel in the implementation of universalization of education, both at the early school level and in functional education for out-of-school youths and adults. The papers analyse efforts being made in the various countries to achieve the aims of universalizing education; examine the current policies and strategies in the preparation of teachers and other educational personnel; and suggest guidelines for policies to meet problems being faced.

India's National Council for Teacher Education (NCTE) has recommended several patterns of correspondence-cum-contact courses for training teachers. Nepal offers a distance learning teacher training programme. Pakistan indicates a need for training in the development of instructional materials to back up literacy programmes given through mass media such as TV and radio. In the Philippines a recommendation was made to include in teacher education courses the familiarization with various modes of delivery systems for education such as radio, TV, self-instructional kits and distance study schemes. In some regions of Thailand educational radio programmes have been launched by teacher colleges.

Directory of institutions of higher education in Asia and the Pacific engaged in distance education. Bangkok, Unesco, 1982. 55 p. (Regional Co-operative Programme in Higher Education for Development) R (Directories) 374.4 DIR

Data are presented countrywise in a common frame for ease of inter-institution reference. The data relate to the name and address of the institution; year of commencement, objective, scope and level of the programmes; enrolment, admission policy, teaching staff, teaching techniques and the contact person. This directory lists only institutions that responded to a questionnaire mailed by the Unesco Regional Office for Education in Bangkok.

The extent of importance that distance education is gaining can be seen from the fact that in the present directory, 50 institutions have reported a total enrolment of 590,000 students in various degree, diploma, certificate and other types of higher or continuing education. China, the Republic of Korea and Thailand have reported the largest enrolments of 334,512; 76,184; and 76,627 respectively. The Central Broadcasting and Television University of China alone enrolled 324,000 students.

The survey has shown that the system of distance education varies from institution to institution in the way they administer and operate the programme, use media, and in their priority targets and courses of study. This variation is a character that gives uniqueness to the philosophy of distance education and makes it responsive to the varied needs of the population it serves.

Distance Education; a biennial journal (March, September). Melbourne, School of External Studies, Royal Melbourne Institute of Technology Ltd., 1980- P

This journal was founded by the Australian and South Pacific External Studies Association for fostering understanding and co-operation among those concerned with the improvement of external studies in Australia, New Zealand, the South Pacific and other neighbouring countries. The journal keeps people informed about relevant research findings into the nature, the problems, potentialities and possibilities of distance education.

"Distance education", ***Asian-South Pacific Bureau of Adult Education Courier*** (30): 1-43, March 1984. P

Contents: – The future of distance teaching universities in a world-wide perspective. – The Australian University's approach to distance education. . . – Open learning system for Hong Kong, problems and possibilities. – Korean distance learning systems and structure. – The Television Broadcasting University of China. – The Open College of the University of East Asia, Macau. – An off-campus programme in Malaysia. – A comparative study of distance teaching in Papua New Guinea.

"Distance education in Asia and the Pacific", ***Bulletin of the Unesco Regional Office for Education in Asia and the Pacific*** (26): December 1985. P

Contents: Section 1. Considerations in using distance education in Asia and the Pacific: Why distance education? – Possibilities offered by advances in communication technologies. – Section 2. Distance education in countries of the region: – Afghanistan, Australia, Bangladesh, China, India, Indonesia, Malaysia, Maldives, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Sri Lanka, Thailand. – Section 3. Aspects of distance education in Asia and the Pacific: The place of distance education in higher education. . . China. – Using a satellite in distance education. . . The University of the South Pacific. – Planning, operating and evaluating a distance education system.

Inter-Country Study Visit-cum-Mobile Workshop, Sukhothai Thammatirat Open University, Thailand and Darling Downs Institute of Advanced Education, Australia, 6-16 September 1983. ***Distance education in higher education, final report.*** Bangkok, Unesco, 1983. 63 p. 378 INT

Contents: – Challenges of distance education; an overview. – Distance education at a glance in some countries of Asia and the Pacific. – Two distance teaching systems: Darling Downs Institute of Advanced Education and Sukhothai Thammatirat Open University. – Planning, operating and evaluating a distance education system.

International Conference on Open Higher Education, Bangkok, 13-17 August 1984. ***Proceedings of the Conference,*** organized by Ramkhamhaeng University. Bangkok, Ramkhamhaeng University, 1985. 393 p. 378.17 INT

The sessions concentrated on the following aspects of open education: philosophy and concepts, development trends in international perspectives, dichotomy of equity and quality, graduate employment and the challenge of management. From the Asia/Pacific region papers were presented by participants from Australia, China, India, Malaysia, New Zealand, Republic of Korea and Thailand.

Never Too Far; A Newsletter for Distance Education. Bangkok, School of Liberal Arts, Sukhothai Thammathirat Open University, 1983-

This ***Newsletter*** is an activity within the framework of the Regional Co-operative Programme in Higher Education for Development in Asia and the Pacific which was initiated upon recommendations made at Unesco's Fourth Regional Conference of Ministers of Education and Those Responsible for Economic Planning in Asia and the Pacific in 1978 and its appointed Study Group. The ***Newsletter*** serves as an information link among the participating institutions in the Co-operative Programme.

Regional Symposium on Distance Teaching in Asia, Universiti Sains Malaysia, Penang, 4-7 May 1981. ***Report on the Regional Symposium, organized by Off-Campus Academic Programme,*** [edited] by G. Dhanarajan and Mariam Lim. [Kuala Lumpur] Off-Campus Academic Programme, Universiti Sains Malaysia, 1981. 1 v. (various paging) 374.4 REG

The sessions covered the following: Country reports on distance education. – Philosophy goals and objectives of distance education systems. – Infrastructure, academic staff training and the use of educational technology to develop effective teaching and learning of distance education. – Problems in distance education; strategies in overcoming them. – Research on distance education. – Towards regional co-operation in Asia.

Preliminary steps were taken towards the formation of a Distance Education Council for Asia (DECASIA) which would serve as a vehicle for the professional development of distance education in the region.

Sharma, Motilal. ***Distance education.*** Manila, Education Division, Infrastructure Department, Asian Development Bank (ADB), 1985. 15 p. (ADB Professional staff paper). C.F.

This paper quotes the World Bank's definition of distance education as "an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner". The components of distance education, experiments and experiences including prospects

and issues in distance education are examined. The paper calls for the Asian Development Bank and its member countries to further study issues involved in introducing or operating programmes relating to Distance Education in order to clarify their immediate objectives and help identify possible projects for Bank assistance. Some of the issues pin-pointed for study are: (1) models for distance learning strategies suited to developing countries; (2) cost effectiveness and the resources available for distance education; and (3) technological innovations and possibility of adopting them including sharing of certain common facilities where appropriate.

UNDP/Unesco Inter-Country Project: Regional Technical Co-operation for Training Educational Personnel in Planning and Management Using Distance Teaching and Other Techniques, Evaluation Workshop, Bangkok, 16-18 March 1983. ***Report.*** Bangkok, Unesco, 1983. 28 p. 371.102 UND

In the process of assessing and evaluating the activities and outputs of the present project, the Workshop noted a number of growth points that link with, or must be considered in, the implementation of a proposed project of increasing the efficiency of education through improved management and planning. The growth points are as follows: (i) promotion of distance teaching techniques and the preparation of training materials; (ii) improvement and enrichment of existing/available training materials in management and planning; (iii) expansion and strengthening the network system; (iv) improvement of the system for implementing and monitoring project activities; and (v) establishment of state/sub-national training institutions and/or resource learning centres.

[Unesco] Meeting of the Consortium on Innovation in Higher Education, Bangkok, 31 August – 7 September 1982. ***Innovation in higher education; report of First Meeting, convened by Unesco jointly with Sukhothai Thammathirat Open University of Thailand.*** Bangkok, Unesco, 1982. 37 p. 378.5 UNE

After a general survey of innovative developments in higher education in the countries of the region, the meeting of the consortium addressed itself to its principal task, namely, to identify the specific projects in the broad area of innovation in higher education which may be carried out by the consortium with the support of concerned international organizations.

From the presentation and discussion of country reports three major areas of innovative development were selected by the Meeting which were felt to respond best to the needs and concerns of the participating countries in advancing their developmental objectives. These three areas relate to innovation in:

a) the area of institution building notably distance education;

b) the area of academic programmes and processes, more specifically the quality of higher education; and

c) participation of institutions of higher education in development.

Unesco. Regional Office for Education in Asia and the Pacific, Bangkok. ***Resource materials used in distance teaching by higher education institutions.*** Bangkok, 1984. 44 p. (Regional Co-operative Programme in Higher Education for Development) R (Directories) 374.4 UNE

This short directory contains some basic information on the types of instructional materials that are being used by 34 institutions of higher education in Australia, India, New Zealand, Pakistan, Sri Lanka and Thailand. It may be observed that a wide variety of courses are being offered and materials used in distance teaching modes. The instructional materials have been listed together with the subjects or courses of study. The institutions have been listed by country in alphabetical order.

It is evident that printed correspondence materials in one form or the other are the most commonly used instructional materials. In the industrialized countries like Australia and New Zealand which also have a long history of distance teaching, there is also an extensive use of audio cassette tapes. This relatively simple and inexpensive device also constitutes an important component of the media used by the distance teaching universities in Pakistan, Sri Lanka and Thailand. The popularity of other means such as video cassette, telephone tutorial seems to be on the increase. The role of radio and television is minimal in formal instruction with the exception of the three universities in Pakistan and Thailand which make substantial use of both radio and television.

Wichit Srisa-an. "The education of adults at a distance: an Asian perspective", in ***Education of adults at a distance; report of the Open University's Tenth Anniversary International Conference,*** ed. by Michael W. Neil. London, Kogan Page and the Open University, 1981 (1983). p. 23-27.

The author cites the external studies system of Australia's Deakin University, China's Central Broadcasting and TV University, Japan's Broadcasting University, Pakistan's Allama Iqbal Open University, Sri Lanka's Institute of Distance Education and Thailand's Sukhothai Thammathirat Open University, as institutions of distance learning; and that despite their individual characteristics, all have one aim in common: to serve the needs of adults seeking to upgrade professional qualifications and/or to acquire a real understanding of the subjects chosen.

In the light of experiences of the above systems, the author poses the following questions: Why is it necessary to provide adult education through the distance learning system? – For whom is the distance learning intended? – How are we to set up an appropriate distance learning system? – How are we to maintain high quality teaching and prevent a lowering of standards? – How are we to avoid wastage without producing an over-abundance of graduates, or how can we avoid the wastage vs. surplus dilemma? – What is the key to success?

The author concludes that while it is recognized that distance education will facilitate the democratization of the adult education process, it is difficult to put into practice, nevertheless, it is both a challenge to accept and a mission to accomplish.

AUSTRALIA

Elston, C. and D.M. Kennedy. "Satellites", ***Developing Education; Education in the Northern Territory*** 10(1):14-17, 1984. P

The National Satellite System allows the concept of teaching isolated students to be thoroughly upgraded. The examples given here show that the satellite is an ideal means of providing high quality voice communications transferring data to and from student microcomputers and providing for the distribution of audio and video material. The satellite can also provide additional services carried over the high quality satellite voice circuit and has a high degree of flexibility in the provision of a range of services over large geographical areas. (The author)

Foster, M.F. "Domestic satellite and Schools of the Air", ***Developing education*** (Northern Territory Department of Education) 9(1):2-4, August 1981. P

The author envisages the possible influences Australia's own domestic satellite in orbit will have on Schools of the Air (SOTA) and for students in isolated communities through use of a module which will plug in to a remote telephone service receiver/transmitter. For locations where no telephone exists, a stand-alone school of the air facility is described with possibility to rent equipment from Telecom or from the Education Department. The costs and impact of television and several existing technologies on Schools of the Air operations are also analysed and assessed.

Grayson, Peter M. "An Australian university's approach to distance education – formal and non-formal", ***ASPBAE Courier*** (30):9-14, March 1984. P

In 1911, three out of the 83 students enrolled in the University of Queensland, took advantage of instruction given by means of correspondence. It was thought then that the need for such courses would disappear, but as of todate the number of external students has now reached 40,000 and a School of External Studies and Continuing Education has been established and considered a University priority.

In 1984 an experimental professional updating teleconference was completed. The continuing education programme has two courses being guided with non-credit learning packages. A first newspaper course has been published supported by learning packages and a study guide for in-depth study. The University is also applying for an educational broadcasting licence with the Government's

Department of Communications capable of satellite access for both degree and Continuing Education programmes.

"The isolated in education", ***Developing Education*** (Northern Territory Department of Education) 8(6):1-40, June 1981. P

Contents: Distance or difference in aboriginal education. – New directions in distance education for children. – Teaching reading to the isolated. – In receipt of learning. – Some new symbol for the soul. – Defeat of isolation. – Isolated children's parents' association. – A point of view. . . outstation education in the Northern Territory.

Lange, James C. "Communication satellites and tertiary education", ***ASPBAE Courier*** (30):34-43, March 1984 P

The author in this article looks into the development of educational uses of communication satellites in the area of tertiary education which could provide the widest possible educational opportunity to the widest possible range of students who are ready, willing and able to take advantage of it.

Pryor, R.E. ***Survey on aspects of in-service education with special reference to distance education's report, October 1980.*** [North Sydney, In-service Education, Department of Education, 1981] 22 p. and appendices. mimeo. 371.146 PRY

Twenty-seven per cent of the teachers surveyed in the Liverpool and Western regions of the State of New South Wales replied that distance was the cause of their inability to attend in-service education. Ninety-eight per cent of the teachers felt that to add Distance Education as an extra dimension to In-service would fill a very definite gap. In some cases it would be some In-service rather than none, as not everyone can benefit from the existing offerings. The more alternatives that are available, the more teachers can be helped. Teachers in more distant parts of the State do have the feeling that they are cut off and the under-privileged.

[South Australia] Open College of Further Education, Adelaide. ***Annual report, 1980.*** Adelaide City, The College, 1980- . 70 p. 378.994 SOU

The College was established in May 1979, combining what were formerly the South Australian College of External Studies, the Multi-Media Centre and the Print Production Department. The constituent parts of the Open College are two centres: the Centre for Resource Development and the Centre for Open Studies.

The College serves the following groups of adult learners who wish to study externally for reasons of: constraints of time, location, disability, work or

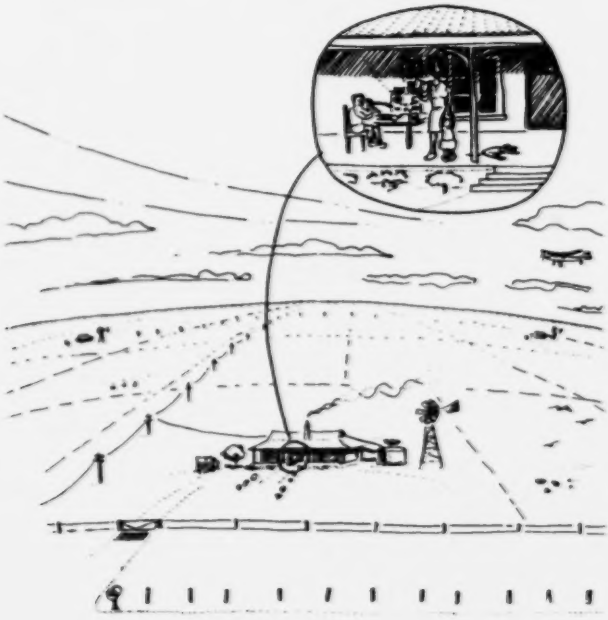
home commitments, preference for study at a pace and place at variance with normal classroom conditions. Staff and students in all Department of Further Education Colleges by the provision of learning materials may also be enrolled in the College.

Taylor, Jim and Vernon White. "New directions: continuing education at a distance", ***Australian Journal of Adult Education*** XXI(3):11-19, November 1981. p

This paper outlines an existing teaching programme at a regional College of Advanced Education. The programme aims at making continuing education courses available to people who are remote from tertiary level teaching institutions.

Tomlinson, D.G. and P.D. Tannock. ***Review of the Assistance for Isolated Children (AIC) Scheme.*** Nedlands, W.A., Department of Education, University of Western Australia, 1981. 241 p. 374.4 TOM

Review of the Assistance for ISOLATED CHILDREN SCHEME



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The principal aim of the AIC scheme has been to help parents to provide their children with reasonable access to normal schooling by subsidising the additional costs entailed.

Benefits payable under the scheme fall into three general categories:

Boarding Allowance	–	for children who must live away from home to attend school
Second Home Allowance	–	to help towards the cost of maintaining a second home which gives the students daily access to school
Correspondence Allowance	–	for students living at home and studying by correspondence. All parents of correspondence students receive flat rate of $500 per child

In Queensland and the Northern Territory, Pre-School Correspondence Allowances are payable for each child enrolled for the full school year in the courses conducted by the Queensland Education Department or the Katherine or Alice Springs School of the Air. The allowance of $120 per annum is not means tested. As with the Basic Correspondence Allowance, it is intended to assist parents with the costs involved in purchasing a cassette recorder and other teaching aids, equipment and books involved in the course, as well as with postage costs. This review of the AIC scheme showed there is a need for additional trained professional personnel to assist and advise home supervisors as well as a need for support services.

"Western Australia assists isolated learners", ***Education in Asia and the Pacific: reviews, reports and notes*** (18):59-60, September 1981.

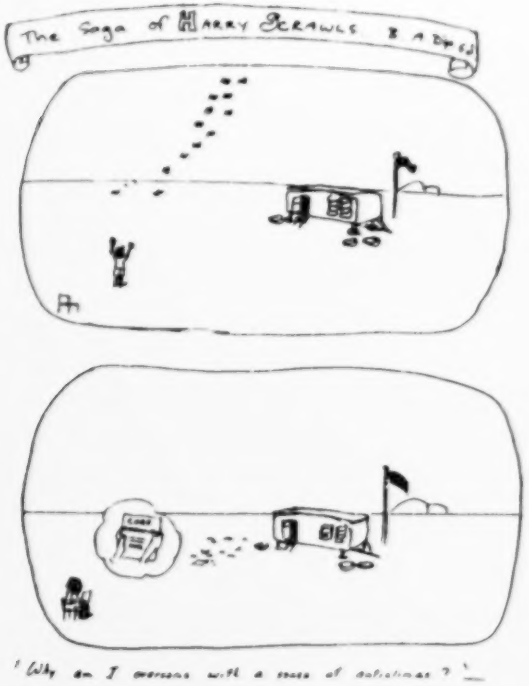
This document is one of a series of studies of rural education emanating from the Education Department of Western Australia, and provides a case report on the Isolated Students Matriculation Scheme and the Chidley Education Centre.

The heart of the scheme involves specially developed curriculum materials and student guides that would permit these children to master matriculation-level subjects without immediate access to continuing specialized teacher support. For students with learning difficulties, tutorial support is necessary. The courses are limited to those that are practical under correspondence conditions, such as language study (English), history, economics, human biology, mathematics, technical drawing and art. Residential camps are provided to permit youth to have extended social contact with their peers.

[Western Australia] Education Department. Research Branch. ***Innovations in rural education: the isolated students matriculation scheme in Western***

Australia, and the Chidley Educational Centre [Perth] 1979. vi, 41 p. illus. (Studies in rural education no. 3)

The Isolated Students Matriculation Scheme combines the traditional forms of correspondence education with concepts such as the incorporation of a curriculum development unit, and the development of mechanisms by which personal contact of students and tutors is fostered. The Chidley Educational Centre which was established in 1976 provides remedial and psychological services to children living in isolated areas. It came about as a response to the realization that access to specialist remedial education staff, guidance officers, and school psychologists was an acute problem for some rural children, particularly the isolated child living at home and working on correspondence lessons. Both these organizations thus represent innovative approaches to overcoming some problems facing education in the isolated areas of this State.



Source: ***Developing Education*** (Northern Territory Department of Education) 8(4):33, January 1981.

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China. "Adult education", in ***Education and science.*** Beijing, Foreign Language Press, 1983. p. 95-102.

The adult education programme following the "cultural revolution" seeks to raise the educational level of hundreds of millions of peasants, workers, cadres and other working personnel.

For workers, the government's educational departments may operate workers' schools or educational programmes via radio and TV, while regular colleges educate more by means of correspondence or night university.

"Beijing spare-time education booms", ***China Daily:*** 1, 21 April 1983.

Some 70,000 persons, including cadres, workers and soldiers, have been given college education in their spare time through the TV University, night or correspondence colleges.

The boom in spare-time education has considerably helped to bridge the gap between the need for trained personnel and its limited facilities for regular education.

China, People's Republic of. Ministry of Education. Office of College Examination for Self-Taught Students. ***China's examination system for self-taught students of college courses.*** Beijing, 1984. 18 p. (In English and Chinese)

In 1980 the Ministry of Education drafted the Measures for Trial Implementation of Examinations for Self-Taught Students of College Courses. The following year the State Council approved and transmitted the Ministry of Education's report on these measures and agreed that the system should be tried out in Beijing, Tianjin and Shanghai and Liaoning province. In the next two or more years of trial implementation the examination system found an enthusiastic reception among cadres and the general public, particularly among young people and adults who had been studying on their own. In May 1983 the State Council approved the establishment of the National Examination Guidance Committee for Self-Taught Students of College Courses and urged the people's governments at all levels to make preparations for the gradual establishment of corresponding institutions in their own areas. The system is now being promoted throughout the country. This pictorial report includes statistics on number of persons who have applied for the examinations in various specializations and who have received certificates.

Central Radio and Television University (CRTVU). ***Radio and television universities in China.*** Beijing, 1984. 10 p. c.f.

Although TV universities were set up as early as 1960 and graduated over 8,000 students, it was after 1976 in line with the socialist modernization that TV universities had to train great numbers of qualified specialists in all fields. This booklet describes the organizational system and administrative structure of

the national radio and television network of higher education formed throughout the country, their target students, categories and conditions of students, modes of study, media used, examinations, tutorials and laboratories.

Li, Tong. "The Television Broadcasting University of China", ***Asian-South Pacific Bureau of Adult Education Courier*** (30):25-26 March 1984. P

The TV university is the product of the joint effort of the Ministries of Education, Broadcasting and Postal and Telecommunications. Students of the TV university are scattered all over China, in factories, government departments and organizations. These units offer training to their staff through the TV university, and provide them with space for study, pay their fees and arrange time off work.

"A network of spare-time schools", ***Beijing Review*** 27(32):26-29, 6 August 1984. P

There are six types of spare-time higher education in China: evening university, correspondence college, radio and TV university, workers' college, spare-time college and qualifying examinations after individual study.

There are now more than ten institutions offering correspondence courses and 50,000 have successfully completed their courses. The period of schooling is the same as for evening classes. Students sit for examinations at the middle and end of each term.

The Radio and TV university has the largest enrolment in China. Since 1979 when the university was first set up it has enrolled 1.2 million students. Students who enrol must pass an entrance examination. Auditors while they may not have taken an entrance exam may apply for final examinations and upon passing the examinations can obtain certificates for one subject or a special course.

Wen, Jiao. "University without walls", ***China Reconstructs*** 32(7):30-31, July 1983. P

Shanxi Correspondence University offers, via a combination of mail, radio and press – a standard four-year university level course in ancient and modern Chinese language and literature, writing, philosophy and other subjects. It sends its own materials to its students, guides them through the Shanxi Youth magazine, and gives open-book examinations (subsequently publishing the answers in the magazine). Each month Shanxi Youth carries special articles on good study habits, problems of learning, and lesson planning.

To some extent, correspondence study is augmented by a personal instruction network. The university has agencies in 16 provinces and cities, some branch schools, 100 tutorial stations, and over 300 study groups in smaller towns

and villages. The teachers are usually from local schools and colleges. This set-up reaches 7,000 students directly.

Almost anyone can enroll in Shanxi Correspondence University. The oldest student, aged 87, is Zhang Jingfang, adviser to the Yuci City Library in Shanxi. The youngest is 14 year old Zhang Zhengping. (The author)

INDIA

Bhatia, S.C. "Correspondence education", ***University News*** 19(6):157-158, March, 1981. P

Correspondence education in India has been in operation for over 20 years and is offered not only at the university level but at school level. In the beginning it was rather difficult to convince people that education could be conducted without classrooms and daily contact with teachers. Through the years correspondence education has been confronted by administrative and management problems. The author says that correspondence education in India has developed some engine trouble in the wake of its excessive and indiscriminate use in India and failure to respond to the needs and aspirations of the disadvantaged sections of society.

Chalam, K.S. and R. Sudarsana Rao. "Correspondence education as an agency of continuing education for weaker sections", ***Indian Journal of Adult Education*** 43(5):13-17, May 1982. P

The Education Commission 1964-1966, noting that the traditional modes of education are not adequate to provide education to the ever increasing population, recommended that correspondence courses should be offered to those who are unable to attend part-time courses and to those who have discontinued studies after primary education. Incentives are suggested for encouraging people to continue education through distance education.

"ETV: a powerful medium for distance education", ***NCERT Newsletter*** 10(5): 6, April 1984. P

Gore, M.S. [and others] ***The SITE experience.*** Paris, Unesco, 1983. 58 p.

The initials SITE stand for Satellite Instructional Television Experiment. In this publication, commissioned by Unesco, the accent is on the word experiment. It is a summary and a critical assessment of about 50 research studies relating to the whole complex operation, not an evaluation of the programme itself.

The SITE project involved in- and out-of-school instruction and participation; it had complex managerial, technical and economic problems. Research had also to be organized at the formative, operational and summative stages of

the experiment. This study tries to cover each of these dimensions including the developmental impact of modern communication techniques in rural areas and as they are particularly relevant in view of the present proposal to establish a more permanent satellite-based communications system in India in the near future.

Gupta, S.K. "Distance education – problems of co-ordination, co-operation and functional autonomy", ***Journal of Higher Education*** 7(3):237-242. Spring 1982. P

_____. "Towards a framework for distance education in developing countries", ***Journal of Indian Education VIII*** (2):40-43, July 1982. P

The author points out the weaknesses of existing distance education systems and gives suggestions for gathering support, planning, management, co-ordination, networking, reduction of costs and faculty development.

India. Central Board of Secondary Education. Open School, New Delhi. ***Editing distance teaching material, a collection of papers.*** New Delhi, Central Board of Secondary Education, 1981. 48 p. 374.4 IND

Contents: Aspects of editing. – Editing for distance education. – Writing for communication. – Editing publications.

_____. _____. _____. _____. ***Writing for distance teaching.*** New Delhi, Central Board of Secondary Education, 1980. vi, 96 p. 374.4 IND

India. Ministry of Education. ***"Use of satellite television. . ."*** in ***Educational developments in India 1980-1985; country report presented at the Fifth Regional Conference of Ministers of Education and Those Responsible for Economic Planning of Member States in Asia and the Pacific, Bangkok, 4-11 March 1985.*** New Delhi, 1985. p. 33-34. 379.54 IND

Use of satellite television for instructional purposes was started in 1975. The Indian Space Research Organization and/or Space Application Centre worked partially for production and fully for transmission of educational programmes in several parts of rural areas in India during 1975-1976, on an experimental basis. With the launching of INSAT-IA/IB in 1982-1983, NCERT continues training in space applications, video-tape recording, film technology and satellite communications. Courses are undertaken in ETV programmes, script-writing, portable video, multi-media packages and school broadcasting.

Koul, Badri N. "A case for professional training in distance teaching", ***IAPL and EI Journal*** (5):59-74, July 1981. P

Mohanty, Sunil Behari. "Distance educational systems in India and abroad", ***Journal of Indian Education:*** 12-19 January 1984. P

The author defines distance education as the education that takes place without face-to-face contact between the teacher and the taught. He, however, adds that nowadays the distance education concept has accommodated certain types of face-to-face contact to improve the quality of education.

The objectives, operation and outcome of distance education projects in a number of countries are described. In India the distance education programmes are carried out through radio and correspondence given by Secondary Boards of Education and universities to prepare students for various examinations. There are also a few non-credential-oriented courses that try to develop certain skills in various professions as part of pre-job or in-job training.

Mohanty, Jagannath. "Educational television programme under INSAT", The ***Education Quarterly XXXV*** (1):16-18, January 1983. P

The first Indian National Satellite popularly called INSAT was launched on 9 April 1982 to promote expansion of educational broadcasting facilities and accelerate the pace of national development through its various programmes with educational, social and cultural inputs. The INSAT project is mainly intended for rural audiences in the less developed areas of the country. Radio and television easily reach all parts of the country and the programmes benefit the country's vast population. The article describes the nature and objectives of the ETV programmes, the planning and production of programmes and their utilization and evaluation.

Panda, Santosh K. "Functional education through correspondence", ***EPA Bulletin*** (National Institute of Educational Planning and Administration) 4, 5(4,1):39-45, January and August 1982. P

_____. "International perspectives in distance learning – a plea for India", ***The Education Quarterly*** 34(1):7-11, January 1982. P

The author makes a plea to all institutions offering correspondence and distance education to provide professional/vocational courses. The work-oriented correspondence courses offered in the United States, USSR, France, Israel, Japan, Kenya and Poland are examined in order to view what is already taking place in other countries.

Prahlad, S.R. "Application of programmed instruction to distance-teaching in teacher training contexts; a study at the CIEFL, Hyderabad", ***IAPL and EI Journal*** (5):46-58, July 1981. P

Prakash, Sant. "Accelerating correspondence education in our country", ***The Education Quarterly*** 32(1):19-20, January 1980. P

The author points out that the present set up of formal education serves the needs of only a limited portion of the population, and that correspondence education should be stepped up to reach the many persons who cannot come to the classroom. Pandit Jawaharlal Nehru's letters to his daughter are given as an illustration of how education on many topics was passed on to Shrisrati Indira Gandhi.

The preparation of instructional materials and the role of audio-visual materials' including programmed instruction are discussed. As it is for formal education, the author stresses that correspondence education should likewise educate people along qualitative lines.

Sahoo, P.K. "Correspondence courses in higher education: major issues and perspectives for research", ***EPA Bulletin*** 3(2):23-32, July 1980. P

Some aspects of correspondence education which, the author points out, require in-depth studies are: course structures, learners' personal and demographic background, learners' needs and motivation, reactions and problems of persons involved in correspondence programmes, drop-out problems, follow-up of products, resources for expansion of various types of courses and programmes, administrative and management procedures, use of multi-media and self-learning materials, self-instructional packages for training instructors and evaluation of programmes.

Yadav, R.S. "Role of mass media in distance education", ***EPA Quarterly Bulletin*** 7(3 and 4):37-52, October 1984 and January 1985. P

The author points out that the vast population of India in itself poses a problem in terms of providing educational opportunity for all. In search of ways to meet the educational needs of the disadvantaged sectors of society, the author reviews studies done on the use of mass media in distant education. Based on the outcomes of the studies, the author frames questions addressed to policy-makers as to the feasibility of supporting the use of mass media programmes in distance education.

INDONESIA

Indonesia. Ministry of Education and Culture. ***Buku inofrmasi Universitas Terbuka (Information handbook on the Open University).*** Jakarta, Universitas Terbuku, 1984. 34 p. (In Indonesian)

The handbook introduces the newly-opened Open University to the academic world and to society as a whole. It contains background information prior to the establishment of the University including its objectives; legal base; study programmes; civic/academic activities; organization and management.

Communication between the University and its students throughout the archipelago is done through the services of the Post Offices of the Ministry of Communication. The Open University also depends on the services and facilities of the existing universities throughout the country to carry out its tutorials and examinations. For the 1984-1985 academic year, the University has four bachelor degree programmes and 27 diploma and certificate programmes.

Listening to a drama on family planning

Source: Indonesia. Ministry of Education and Culture. ***Packet A-No. A17: Keluarga berencana (Family planning).*** Jakarta, 1984. p.13

Indonesia. Ministry of Education and Culture. Centre for Educational and Cultural Communication Technology. ***An idea on the development of open secondary schools to pave the way to the secondary level open education system; presented to the Workshop on Open Education Concept Development of Secondary Schools, Jakarta, 8-11 November 1982.*** Jakarta, 1982. 20 p. (In Indonesian)

Based on previous experiences, it was obvious that the open learning system can be used as an alternative to solve the problem of equalization of opportunity to attend secondary education at junior level in an effective way: (1) to make use of learning resources available in the society; (2) to overcome geographic and socio-economic constraints; (3) to overcome the shortage of rooms and competent teachers; (4) to develop individualized learning habits; (5) to service students with different characteristics; and (6) to modify the society's concept that learning can also be done outside classrooms.

_____, _____, _____. ***Supplementary material for educational radio broadcasting.*** Jakarta, 1984. 6 vols. (In Indonesian)

BEST COPY AVAILABLE

Contains the teachers' handbook to use with educational radio programmes on different subjects of secondary school level: language, civics, . . . Indonesian language, moral education/civics, religious education, natural sciences, mathematics and the time-table of broadcasts.

Unesco. Regional Office for Science and Technology for Southeast Asia (ROSTSEA), Jakarta. "Improvement of General Secondary Teacher Education under the Director-General of Higher Education, Ministry of Education and Culture", in ***Semi-annual report, 1 July – 31 December 1983.*** Jakarta, Unesco ROSTSEA, 1983. p. 135

The project has developed curricula for 36 Higher Teacher Training Colleges related to preparing teachers for the general secondary schools in 12 subject areas. This work has served as a vehicle for implementing the Government's general higher education reform through the establishment of nationwide professional and administrative networks. Using the networks, the initial curriculum development activities are being expanded to create instructional materials, and materials development processes, in a series of in-country training production workshops. The logical outgrowth is to plug the networks into Indonesia's satellite, activating two-way communication production training workshops using computers, teleprinters and facsimile machines.

Whiting, Kenneth. "Indonesia's first Open University has 66,000 pupils", ***Bangkok Post,*** 8 October 1984. P

The 66,000 persons enrolled at Indonesia's newest university seldom see their professors or fellow students in person. They are taking courses from Universitas Terbuka or U.T., Indonesia's first "open university", which is designed to extend tertiary education across a nation of 13,677 islands.

BEST COPY AVAILABLE

The 1984-1985 academic year was launched with courses in business administration, development studies, economics and applied statistics. There are plans to expand the curriculum. . . For students in remote areas who face transportation problems in reaching a regional university. . . books and cassettes have been prepared in such a way they don't have to see their tutors too often. . . (The Reporter)

JAPAN

Japan. National Institute for Educational Research of Japan. Section for Educational Co-operation in Asia. ***The University of the Air Foundation; the aim of the establishment of the university and its programme.*** Tokyo, 1982. 22 p. (NIER Occasional paper 04/82) c.f.

The aim of the University, which was established in 1981, is to provide a new educational institution as a nucleus of the life-long education system, by making effective use of radio and TV for university-level education.

The three major purposes of the University are: (1) to provide university-level education for workers and housewives; (2) to ensure a flexible opportunity for university education for those who complete upper secondary education as a new method of higher education; (3) to share the fruits of the latest researches and educational techniques and to promote the exchange of teaching staff and the interchangeable credit system between existing universities as well as to extend the use of the materials developed for the University of the Air.

_____. ***National Institute of Multi-media Education; Hoso Kyoiku Kaihatsu Center***. Wakuba, Chiba-shi, The Institute, 1984. 30 p. c.f.

The Hoso Kyoiku Kaihatsu Center was established in October 1978, as a national institution for joint use with universities in order to conduct research and development in new fields of university education and in anticipation of the founding of Japan's first University of the Air. Since its establishment, the Center has worked in new fields brought about by a synthesis of a variety of media, producing and broadcasting experimental programmes for radio and television, publishing text material, using the television monitor for teaching, measuring and evaluating the results of such study methods, and doing comparative studies of pioneering developments in long distance education carried out overseas.

In addition to comprehensive co-operation with the University of the Air, in its capacity as a joint-use institution, it endeavours to improve university education by means of public lecture broadcasting, correspondence teaching and the like.

The University of the Air Foundation. ***The University of the Air.*** Chiba City, 1984. 20 p. c.f.

The foreword of this publication states that the University aims to extend its campus into people's homes and places of work – even into the mountains and over the sea. The university is not only for the young but to provide life-long education to peoples of all ages and walks of life. This publication presents the wide range of courses designed to meet students' needs, the system for learning, a list of the directors and staff and administrative details.

MALAYSIA

Mohamad, Datuk Musa. "An off-campus programme in Malaysia", ***ASPBAE Courier*** (30):28-30, March 1984. P

To meet the demand for university education in the face of lack of adequate facilities and resources, the Universiti Sains Malaysia in 1971 started a distance education (off-campus) programme leading to degree awards for adults. The programme aims to: enhance the productivity of those already in employment, redress the imbalance of educational opportunity, meet the increasing demand for high-level manpower, provide high standards and diversified studies to off-campus students, and devise new approaches to teaching and learning at a distance.

Some of the academic and administrative problems encountered are: conventional academics are loath to accept or implement innovative suggestions, conflict between off-campus and on-campus priorities, limited resources, use of on-campus regulations for off-campus students and need for editorial and reprographic control for distance education materials.

Nuruddin bin Jamin. ***Distance learning in Malaysia; country report for APEID Study Group Meeting on Distance Learning Systems and Structures, Wellington, New Zealand, 16-28 November 1982.*** [Kuala Lumpur, 1982] 21 p.

Distance learning has been in existence for some time in Malaysia. It is in the form of correspondence courses run by a few private enterprises catering mainly for private students sitting for examinations such as the Lower Certificate Examination (LCE), the Malaysian Certificate Examination (MCE), the Higher School Certificate (HSC) Examination, and also for external degrees overseas. However, the Ministry of Education did use correspondence courses for its in-service training of about 3,500 primary school teachers in 1958-1965. In addition, the Ministry of Information, through radio and TV, has been broadcasting non-formal type programmes such as agricultural programmes for farmers, housecraft programmes for housewives, Islamic religious programmes for the Muslims, etc.

This paper deals with the Educational Media Service (EMS) Division of the Ministry of Education and how it works in strengthening the national education system by reducing imbalances and improving educational opportunities in

rural schools which are handicapped for lack of qualified staff and equipment. The Off-Campus Academic Programme of the University of Science Malaysia is also described, which has among its objectives to take education to areas outside the campus in order to reach those in economically less favourable geographic areas.

NEPAL

Graham, Jack. "The Radio Education Teacher Training Project in Nepal", ***Education Quarterly*** XXVIII(1):49-53, January-March 1983. P

Karmacharya, Uttam Krishna. ***Teacher training through distance learning in Nepal.*** Pokhara, Institute of Education, 2037. [1981?] 23 p. mimeo. c.f.

Teacher training through distance learning is an innovative technique adopted by the Institute of Education to train the backlog of under-qualified, under-educated, untrained teachers of the remotest areas since 1976. In short, the Distance Learning Project (DLP) is an alternative structure and approach of teacher education introduced for the first time in Nepal. This report covers the rationale of the project, its implementation, experiences and observations, and suggestions and recommendations which call for evaluation of the Distance Learning Project following three years of existence.

Pradhan, Arun K. and Donald D. Paige. "Radio Education Teacher Training (RETT)", in ***Education and development, 1982.*** Kathmandu, Research Centre for Educational Innovation and Development, 1982. p. 79-86. P

Nepal, a mountainous country, where one-third of the districts are officially declared as remote areas, has a great need for using the radio as a vehicle for mass communication. In the field of education also, its usefulness and practicability for various activities of formal and non-formal instruction are obvious.

Nepal has committed itself to providing free education from grade I to III and gradually to grade V. This has put extra premium on the need for training more primary teachers for the years to come. Thus the RETT Project has been conceptualized and designed to provide training to untrained under-SLC primary school teachers so that they can be made better skilled as teachers in the classroom. The main objective of this Project is to develop and test a training programme using radio as the medium for instruction which is to be reinforced by written self-instruction materials and periodic short-term workshops.

"Radio reaches rural teachers in Nepal – but do they have the energy to turn it on? ", ***Development Communication Report*** (33):1, 5-6, March 1981. P

The surveys conducted in Nepal indicate that dry cells are more easily used as the power source for their radios by teachers in Nepal, particularly because

they permit the use of the radio as a portable unit. The solar cell unit works best when it has been permanently installed, thus limiting the portable use of the radio. The dry cells are more cost effective and are readily available in the local markets of the villages. Project personnel recommended the use of size "D" dry cell batteries for the Radio Education Teacher Training Project, choosing brands that have the longest mean life in actual listening tests. At such time as the annual cost of solar cell unit approaches the cost of three sets of dry cells, reconsideration should be given to the use of solar cell units. (The Author)

Shrestha, Kedar Nath. ***Distance learning system: a strategy for a liberal admission policy in higher education.*** Kathmandu, Institute of Education, Tribhuvan University, 1980. 39, ii p. 378.107 SHR

The phenomenon of rising higher education enrolment in Nepal is analyzed, and the conventional measures taken to accommodate the growing number of students have proven unsatisfactory. Distance education systems in Burma, India, Iran, Nigeria, Pakistan, Republic of Korea, Spain, Sri Lanka and the United Kingdom are examined followed by the presentation of a blueprint for a Distance Learning System for Nepal which is geared to meeting the manpower and socio-economic needs of the country.

"Teacher training through distance learning in Nepal", ***Education in Asia and the Pacific; reviews, reports and notes*** (19):51-52, September 1982. P

The Institute of Education, Tribhuvan University adopted an alternative scheme of teacher training through distance learning to train the backlog of untrained and unqualified teachers in the remote rural areas of Nepal. Self-learning materials were prepared, including a handbook of student teaching.

There is an admission test, orientation and guidance, three months self-learning, two months intensive reinforcement and a week of semester examinations.

Tribhuvan University. Kathmandu. Institute of Education. ***Distance teaching programme.*** Kathmandu, 1977. 6 v. mimeo. (Social studies teaching. Primary teacher training course B. Non-credit) (In Nepali)

These are self-learning materials for a five-month correspondence course plus two-months face-to-face tutorials for primary teachers in social studies.

NEW ZEALAND

New Zealand APEID National Development Group. ***New Zealand distance learning systems and structures; paper prepared for the Asian Programme of Educational Innovation for Development Study Group on Distance Learning Systems and Structures, Wellington, 16-26 November 1982,*** ed. by O. Tate. Lower Hutt, New Zealand T.C.I., 1982. 130 p. 374.4 NEW

There are three distance education institutions in New Zealand funded predominantly by the Government: the Correspondence School; the Technical Correspondence Institute, and the Centre for University Extramural Studies. Between them they provide almost all levels and types of education from pre-school and special education to vocational, technical and university degree courses. The three institutions co-operate closely and avoid duplication. There are regular meetings of senior staff about common concerns, such as research. The paper include case studies of the correspondence school, the New Zealand Technical Correspondence Institute and Massey University Centre for Extramural Studies. The institutional structure, the teaching system and the administration of these distance learning systems are studied.

New Zealand [Department of Education] Working Party on Continuing Education at a Distance. ***Learning at a distance, synopsis. . . of report.*** Wellington, 1980. 64 p.

The Working Party has taken the view that distance education is any form of education which is conducted on a systematic basis without the necessity of the tutor (learning manager, teacher) and the learner having to meet. This attitude has been adopted on the grounds that no one learning method is sufficient nor the most effective, and because the wider the variety of available learning modes, the greater the opportunity that the learner has for selecting and employing methods suited to his or her individual needs. The Working Party looked into the various groups of learners and their needs, the major correspondence schools, their set-ups and course offerings, and made recommendations for enhancing their continuing education programmes.

New Zealand Technical Correspondence Institute. ***Prospectus.*** Lower Hutt, 1983- 1 v. c.f.

The Technical Correspondence Institute is a national teaching organization established under the State education system by the New Zealand Government and administered by a board of governors named the New Zealand Technical Correspondence Institute Council. The TCI is a major technical institute whose role is the training of young people who have left secondary school for service in industry and commerce, and the further education and retraining of adults also serving in these fields.

The TCI provides vocational courses by correspondence in trade, technological, agricultural, and commercial subjects, and its students, drawn from throughout New Zealand, are engaged in a field of work directly related to the course they are studying.

Tremaine, M.G., ed. ***Readability: an issue in distance learning; the proceedings of a Conference held at Massey University, 19-20 June 1980,*** ed. by

M.G. Tremaine and G.A. Wagner. Palmerston North (N.Z.) Massey University, 1980. 105 p. TRE 374.4

The participants exchanged information and ideas on their experiences on studies on the readability of material used in distance teaching, research into the uses of the "Cloze" technique and experiences with the organization, editing and presentation of distance education material.

The Conference was described as being a "Workshop" about "work in progress"; it pointed to the necessity for co-operation in research and for submitting distance teaching materials to tests of quality that are specific to the objectives of distance education.

PAKISTAN

Allama Iqbal Open University. Institute of Education and Research Cell and Institute of Educational Technology, Islamabad. ***The effectiveness of radio and television in the distance teaching programme of Allama Iqbal Open University.*** Islamabad, 1982. 49 p. (I.E.R. Publication ser. no. 16)

In response to the information gathered from a questionnaire sent to a sample of 1,829 students, some of the following recommendations were made: (1) The individual needs of the students should be considered in planning the timing of broadcasts and telecasts; (2) Radio being more frequently used than television, should receive greater attention and its quality improved; (3) The place of television in the programmes of the university should be reconsidered since their costs do not seem to be justified in terms of usage; (4) End of course evaluation of radio and television programmes should be conducted regularly and the problems and suggestions of the students should be analyzed closely in order to make appropriate improvements.

_____. Institute of Education and Research Cell, Islamabad. ***IER Publication Series***, nos. 6- Islamabad, 1981-

Each number is a report of an assessment or study of the effectiveness of a training course, workshop or the production and use of training materials and educational technologies. Periodic issues analyze needs, and assess enrolment and examination statistics.

_____. _____. ***Report of the case study on the adoption, production and use of technologies for educational purposes in Pakistan.*** Islamabad, 1982. 61 p. (IER Publication ser. no. 22)

The study looks into: the significance of the use of educational technologies in the formal education system of Pakistan, the development of educational equipment for use at various levels of education, and the use of educational technologies in non-formal education in Allama Iqbal Open University.

Fleming, Alec. "The Allama Iqbal Open University (AIOU), Pakistan", in ***The distance teaching universities.*** London, Greville Rumble and Keith Harry/ Croom Helm, 1982. p. 122-146.

The article describes the programmes of the University which range from basic literacy projects to post-graduate work with emphasis being directed towards the need for functional and social education and towards women's courses. The author points out that the development of an effective local study-centre network is a priority.

Guruge, A.W.P. ***(Allama Iqbal Open University) Expansion project (Transperencies)*** Islamabad, People's Open University, n.d. 309.212 GUR

Pakistan Journal of Distance Education (Bi-annual: Spring and Autumn) Islamabad, Research and Statistics Centre, Allama Iqbal Open University, 1984- P

The Journal includes studies, research and review papers dealing with the past, present and future perspectives of distance education with a view to awakening further interest in the newly growing discipline and opening new vistas of research. (The Editor)

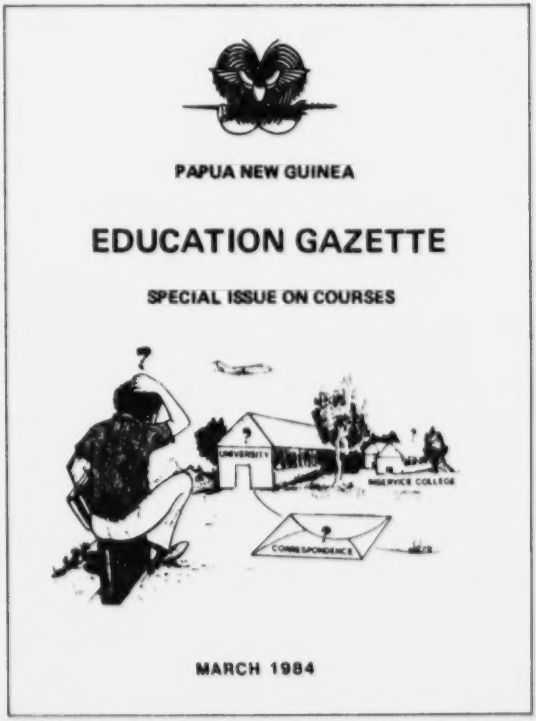
Contents of Vol. I. Distance education and national development. – Distance education and its future through new communication technologies. – Distance learning system and structures: Country paper on Allama Iqbal Open University. – The need for non-formal education in Pakistan. – The strategy for educational development in rural areas with special reference to adult education programmes and the role of radio. – The diffusion of agricultural technology through distance education. – The role of radio in distance teaching in a rural perspective. – Literacy in Pakistan: the role of Allama Iqbal Open University. – Use of multi-media material in non-formal education. – Research. – Vocational education through non-formal system. – Universalization of primary education.

PAPUA NEW GUINEA

Kaeley, G.S. "A comparative study of distance teaching in Papua New Guinea and Kenya", ***ASPBAE Courier*** (30):31-33, March 1984.

The College of External Studies (COES) is the only institution in Papua New Guinea offering distance teaching courses at grades VII-X secondary level. In addition the College offers post-grade X courses leading to a Commerce Certificate. Distance learners are allowed to enrol and sit in one subject at a time. They can go on accumulating credits year after year till they have acquired enough passes to qualify for the full certificate. Teachers form the majority of the distance education enrolment who are studying academic subjects for upgrading purposes. Correspondence material in the semester period is supplemented by recorded cassettes and telephone teaching. Some parts of degree courses

are prepared and offered at a distance and supplemented by residential sessions during vacations, when the internal students are away.



Lipscomb, John. "Correspondence courses in schools?" ***Papua New Guinea Education Gazette*** 18(7):172-174, August 1984. P

The College of External Studies in Konedobu which was in its earlier days "Like some forgotten old auntie" has now grown over the years with an enrolment towards ten thousand catered by 19 provincial centres. While the correspondence courses have a delivery and control system, the author is concerned about what is delivered and for what.

Martin, Rev. "Distance Teaching Workshop", ***Papua New Guinea Education Gazette*** 16(9):264-265, October 1982.

The purpose of the Workshop was to develop audio materials to support written materials for correspondence students. Audio-tapes and radio broadcast scripts were prepared. The rich potential of educational radio in relation to distance education was a recurring theme during the Workshop.

BEST COPY AVAILABLE

Vetali, Tai. "Studying by correspondence", ***Papua New Guinea Education Gazette*** 14(10):236-237, October 1980. P

The author presents the variety of obstacles correspondence students have to overcome if they are to succeed. Distance and time factors still pose problems as students are unable to receive immediate answers to their questions or to obtain instantly help in the difficulties they face. There are problems of poor study facilities such as: no tables, no place conducive to concentration on lessons and poor lighting. The author appeals to adult education workers, high school teachers, employers, parents and community leaders to help correspondence students.

PHILIPPINES

Fernandez, Rodolfo A. "Multi-media support for agricultural development programmes: MASAGANA 99", ***Educational Broadcasting International:*** 74-77, June 1980. P

One of the most important features of the MASAGANA Farm Programme (MFP) is the school or university-on-the-air. A school-on-the-air (SOA). . . employs basically systematic instructional techniques although the broadcasts are not undertaken under classroom conditions. Instead the enrollees listen in their homes either by themselves or in groups. In other wrods, the SOA uses non-formal education techniques. The SOAs in the Philippines have already graduated over 70,000 farmers. And more are 'enrolling' in this informal school. Television was also used during the early phases of this rice production programme, but its use was not as extensive as that of the radio because very few farmers had TV sets and many villages in the country have not yet been reached by electricity. (The author)

Fineza, Adrea Olympia. ***The Philippine experience in distance education: case studies in a developing country. . . . paper presented at the Regional Symposium on Distance Teaching in Asia, Universiti Sains Malaysia, Penang, 4 – 7 May 1981.*** Manila, Asian University for Independent Study, 1981. 13 p. c.f.

The paper describes the Distance Study System from its beginning in 1976 which started from a pilot course in nutrition education and now offers a high school equivalency programme for elementary and secondary school drop-outs and a Master of Arts in Curriculum Planning. Self-learning modules are used supported by radio and television programmes. The curriculum materials are usually initiated by the users and revised and edited by "experts".

The paper also describes the Asian University for Independent Studies and the use of radio in teaching in the country. Case studies identify the needs of the various target groups of the Distance Study Systems.

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Integration of nutrition education in the elementary and secondary curricula; overview of the course for participants of the Distance Study System Learning Package on Nutrition. [Manila, The Ministry of Education, Culture and Sports, n.d.] 1 v. (various paging)

The Distance Study System Learning Package on Nutrition is designed for: anyone interested to learn about nutrition; those concerned and involved with nutrition in the Philippines; and especially, elementary and secondary teachers from all over the country. All participants take the same learning package of ten modules. The difference lies in the assessment activities. Participants after enrolling get their modules from the DSS Supervisor of Instruction. They report regularly to him as indicated in the modules.

[Philippines. Ministry of Education, Culture and Sports] "Attempts at distance study through radio and TV" in ***In-service education for primary teachers: design formulation. . .*** Manila, 1980. p. 11-13.

The use of radio broadcasts in the in-service training of teachers dates back to 1960. The radio broadcast programmes were of the purely distance teaching variety. These were conducted through the facilities of the Philippine Broadcasting System. Four radio stations were involved in Mindanao with three relay stations, two in the Visayas with one relay station, and one relay station in Luzon.

The techniques used involved "ancillary" materials such as teachers notes, mailed or sent through local officials who came to the central office or through central office personnel who went on supervisory visits.

Philippines. Ministry of Education, Culture and Sports. "Non-formal Education Sector", in ***A country report on development in Philippine education: 1978-1985; produced for the Fifth Regional Conference of Ministers of Education and Economic Planning of Member States in Asia and the Pacific (MINEDAP V), Bangkok, 4-11 March 1985.*** Bangkok, Unesco, 1985. p. 9 379.5

In non-formal education, current plans are being made to improve the delivery system for literacy education. In addition to the traditional print media, the extensive use of non-print media is being initiated. This includes the development of taped literacy materials which will be broadcast through mass media facilities in order to reach more clientele/listeners at a single time. Films and other projected visuals like slides and transparencies will gradually find their place in activities meant for literacy acquisition, for use and qualitative improvement of acquired literacy, and for retention and enrichment of literacy skills.

REPUBLIC OF KOREA

Kim, Synghan H. "Current status of distance education in Korea", in ***Proceedings [of the] International Conference on Higher Education, Bangkok,***

Ramkhamhaeng University, 13-17 August 1984. Bangkok, Ramkhamhaeng University, 1984. p. 338-352 378.17 INT

In 1972 the Korea Junior College of Air and Correspondence (KCC) was started within Seoul National University, and in 1973 correspondence courses were offered by 11 high schools. The author, however, states that correspondence education for commoners in Korea dates back to the period of the nation's scholar, Sungho Lee 1891-1963. The author describes the background, ideas, operations and problems of the distance education systems, in particular that of the Korea Air and Correspondence University (KCU).

Kim, Synghan H. "Korean distance learning systems and structure", ***ASPBAE Courier*** (30):20-24, March 1984. P

As of October 1983, there are three types of distance learning institutions in the Republic of Korea, namely: 48 Correspondence High Schools; one Correspondence University; and three Open Colleges of Engineering. The primary objective of all distance learning institutions in Korea is to provide the opportunity for lifelong learning to those who, for various reasons, cannot afford the ordinary public education. Lectures on air, classroom attendance and homework assignments are the three basic methods of instruction; self-learning textbooks and other reading materials are deemed to be more important than any other teaching media. The distance learning systems arrange teaching/learning feedback services.

Lee, Kye-Woo. "The Korean Air-Correspondence High School", in ***Alternative routes to formal education, distance teaching for school equivalency,*** ed. by Hilary Perraton. Baltimore, John Hopkins University Press for the World Bank, 1982. p. 129-172. 374.4 PER

The Air-Correspondence High School (ACHS) which was established in 1974 relies basically on self-study instruction supported by supplementary textbooks, programmed assignments, radio broadcasts, correspondence by mail and educational centres to which students report for further instruction every other Sunday (26 times a year).

Although the Project is still young, certain experiences already present conditions for immediate implementation. The high drop-out rate is a major hazard that can easily cancel the cost saving advantage; therefore aids to motivation and retention are essential. To maximize cost saving, special efforts and continuous evaluation/research are needed to monitor expenditure patterns. Student achievement and maximum use of the project depend on the effectiveness of the teaching force.

Lee, Kye-Woo; S. Futagami and B. Braithwaite. "The Korean Air Correspondence High School," in ***Distance teaching for formal education: what the***

projects tell us about cost and effects, ed. by H. Perraton. Washington D.C., World Bank, September 1978. . . . p. 374.4 PER

Lee, Kye-Woo; S. Futagami and B. Braithwaite. "The Korean Air Correspondence High School, (Abstract of above)", in Unesco's ***The economics of new educational media.*** Paris, Unesco, 1980. v. 2, p. 269-271. 371.39 UNE

The Air Correspondence High School (ACHS) of the Republic of Korea was set up in 1974 by the Korean Educational Development Institute in order to provide high school-level courses for young people and adults out of school. It offers courses using correspondence, radio, and fortnightly face-to-face sessions which lead to the same examinations as those taken in regular high schools.

Students follow a programme of courses for up to 14 subjects. When students have enrolled and paid the appropriate fee, they receive a textbook for each subject taken which is based upon the regular textbook used in secondary schools but expanded to include additional explanations and tutorial guidance. It thus takes the place of both a textbook and a correspondence lesson. Within the textbook there are exercises for students to do and send to a postal tutor although, in fact, few of them make use of this service. Once a fortnight, on Sunday, students are required to attend a teaching session at a regular high school. (The author)

SOCIALIST REPUBLIC OF VIET NAM

1. Đồng chí đang làm gì?
Mẫu: Tôi đang viết báo cáo để gửi lên huyện.

2. Chị đương làm gì?

Source: Pham Toan and Nguyen Truong. ***Sach Hoc Tieng Viet, Tap ba (Vietnamese for ethnic learners)*** Hanoi, Nha Xuat Ban Giao Duc, 1981. p. 21

SRI LANKA

Distance learning in Sri Lanka, ***Education in Asia and Oceania: reviews, reports and notes*** (17):53-54, September 1980. P

Outlines the function and structure of the Sri Lanka Institute for Distance Education (SLIDE), created in 1977. Teaching is conducted via printed materials, weekend tutorials, and laboratory and practical expereince during school vacations. The course covers certificates in mathematics and in technology, (electrical, electronics, telecommunications, mechanical and civil engineering).

Prior, Erna [and others] ***Developing distance education in Sri Lanka: training of untrained teachers, report on the current situation.*** Malmo, Harmods, 1984. 22 p. and appendices. 374.4 PRI

One of the features of distance education is that teaching and learning are separated both in time and space. The students are meant to learn in their homes, guided by self-instructional material produced by a course writer (teacher). In between these two focal points is the study centre. Here, the students can find supplementary material, be guided and counselled, supported and motivated, by both tutors and fellow-students. (The Author)

THAILAND

Baker, Frederick J. ***Distance teaching in Thailand: teacher education comes of age.*** [Bangkok, Thonburi Teachers College] 1985. 8 p. mimeo. c.f.

The Department of Teacher Education in the Ministry of Education has offered correspondence courses leading to a Certificate in Education and a Higher Certificate in Education for teachers in Thailand since 1976. In 1978 the Ministry of Education developed radio correspondence courses consisting of broadcast lectures with accompanying notes and additional cassette tapes of lectures for enrolled students.

There are some 60,000 teachers in Thailand who have yet to complete their Bachelors degree. It is felt that by combining the talents of the 36 teacher education institutions throughout the country with a distance programme, the needs of this group of teachers could be met. In October 1985, a new direction for teacher education came into being. . . the establishment of a distance teaching programme especially for teachers. . . Two Committees have been established to implement this programme. (The Author)

Chaiyong Brahmawong. ***The use of media for distance teaching at Thailand's Sukhothai Thammathirat Open University (STOU).*** Bangkok, Office of Educational Technology, Sukhothai Thammathirat Open University[1981?] 17 p. typescript. c.f.

The paper introduces a typical picture of a busy day in the life of the STOU media production teams working on self-learning text materials and television and radio productions. This serves to illustrate the many elements involved in the preparation and use of media in distance education as discussed by the author.

Focus on STOU; Sukhothai Thammathirat Open University 1984. Bangkok, The University, 1984. 55 p.

The background, mission and goals, administrative structure, academic structure, distance teaching and media systems of the University are described and illustrated throughout with photographs, tables and diagrams. The publication points out that the University's distance learning systems proceed from a concern for the wisest application of appropriate technologies.

Pat Noisaengsri. "Ramkamhaeng University: the management challenge from present to future", in ***Proceedings [of the] International Conference on Higher Education, Bangkok, 13-17 August 1984.*** Bangkok, Ramkamhaeng University, 1985. p. 358-363 378.17 INT

The author discusses the administration, faculty, teaching/learning facilities, research activities and the academic services to the community of Ramkamhaeng University which provides both on-campus and distance education.

Ramkhamhaeng University. University Research Committee. "Ramkhamhaeng University: an overview", in ***Proceedings [of the] International Conference on Open Higher Education,*** Bangkok, 13-17 August 1984. Bangkok, Ramkhamhaeng University, 1985. p. 364-373. 378.17 INT

In a review of the University's organization and activities both on campus and outside the campus, the Committee describes the radio and television network all over the country for delivering lectures to students in remote areas and those who cannot afford a television set. The use of self-study materials in the form of reading and listening materials are also reported.

Sukhothai Thammathirat Open University. Bangkok, The University [n.d.] 10 p. mimeo. c.f.

The paper presents the background, the philosophy, objectives, academic structure, admission requirements, courses offered, methods of instruction, evaluation system and other particulars about the University.

_____. Planning Division. ***Enrolments: Sukhothai Thammathirat Open University – academic year 1980-1981.*** Bangkok, 1982 (B.E. 2525). 177 p. c.f.

The enrolment statistics are analysed in terms of schools, regions, courses, marital status, residence, occupation, monthly income and financial support.

Sukhothai Thammathirat Open University. Planning Division. ***Fact sheet, 1983.*** Bangkok, 1983. 1 v. (various paging). mimeo. c.f.

Facts and figures covering the University's personnel, students, programmes of study and budget are presented in tables from 1980 to 1983.

Wichit Srisa-an. ***Plan to reality: creating new institutions; the case of Sukhothai Thammathirat University.*** Bangkok, Sukhothai Thammathirat University [n.d.] 10 p. mimeo. c.f.

The author states that within the last decade, Thailand has tried to work on programmes to provide lifelong education to the people. In the search for a pattern of providing higher education, a distance teaching university was created by Royal Charter in 1978 under the name of Sukhothai Thammathirat University. After two years of planning and preparation, it enrolled in 1980 some 82,000 students.

After some expereince as rector of the University, the author poses six questions concerning the "whys" and "hows" of distance education.

UNION OF SOVIET SOCIALIST REPUBLICS

Filippov, F.R. "The sociological problems of universal secondary education in the USSR", ***Soviet Education*** XXVI(12):3-21, October 1984. P

The article points out that the widespread general educational training of young people and adult workers is an inseparable component of universal secondary education in the USSR. A review of surveys and research show that the number of people studying in the evening and correspondence secondary schools has been on the increase since 1940 and the age group has grown perceptibly younger. Studies also examine adults' incentives to take correspondence education, the content of correspondence education, its comparison with general education day schools and its relationship to behavioural patterns and life plans.

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Regional Consultation Meeting including nine country status surveys, Seoul, Republic of Korea, 10-13 October 1984. ***Teaching and research in International Law in Asia and the Pacific; report.*** Bangkok, Unesco, 1985. 264 p. (RUSHSAP Series on Occasional Monographs and Papers, no. 11) (US$ 3.50)

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